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ABSTRACT

Based on evaluation of nine Brazilian educational television centers, an Instructional Television Training Model (ITV) was developed to aid in determining and designing training requirements for instructional television systems. Analysis based on this model would include these tasks: (1) determine instructional purpose of the television organization; (2) determine if ITV can be applied to a clearly defined instructional need; (3) determine if the ITV organization is or is to be incorporated into the instructional system; (4) review instructional objectives for clarity; (5) separate problems for beginning and operative organizations; (6) analyze problems; (7) determine if systems's organization or lack of training cause problems; (8) specify training objectives, anticipated functions, and individuals to learn each function; (9) using the Tiffin Matrix, quantify training resource requirements--functions taught, degree of instruction, instruction time, personnel time, number of staff; (10) specify learning objectives; (11) choose appropriate course type, based on subject-matter and locale; (12) management makes cost decisions; (13) select personnel training; (14) assess readiness of facilities and equipment; (15) clear times and schedules for personnel; (16) prepare budget; (17) structure course schedules; (18) prepare instructional materials; (19) determine student's knowledge through pretest; (20) administer instruction; (21) determine learning success through post-test; (22) and assess course success by comparing student's work before and after instruction. Recommendations for national and regional training centers are presented. (CWM)

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Brazil

Educational Television

March - May 1972

by R. Bretz D. Shinar

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TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC) AND USERS OF THE ERIC SYSTEM"

Serial No. 2775/RMO.RD/MC
Paris, October 1972

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I. INTRODUCTION

1. Schedule

The mission schedule provided seven weeks in Brazil. The total of regular workdays for Brazilians was reduced during this period by the 4-day Easter holiday weekend plus two additional holidays, leaving a balance of only 31 official working days. Including holidays and weekends, most of which had to be working days for the Unesco consultants, the mission was 49 days long.

It was necessary at the outset to visit eight operating ETV centres where programme production is presently going on. Accordingly two trips were undertaken, one of seven days duration to São Paulo, São José dos Campos, Recife and São Luiz, and a second of four days to Manaus. An additional day was devoted to visiting the two ETV production centres in Rio de Janeiro.

By the time these trips had been completed and we had attained a working knowledge of what was called the "Brazilian reality" about educational television, almost half the time had elapsed. Careful budgeting of our remaining time, plus heavy reliance on other members of the international team with whom we worked (see Working Group) made possible the design of a pilot model for instructional television training and the preparation of a report describing it.

2. The Working Group

On our arrival in Rio de Janeiro, we found we were expected by the staff of the Centro Nacional de Recursos Humanos, of the Instituto de Planejamento Econômico e Social (IPEA) who had a selection of background materials prepared for us and a suggested schedule of activities throughout our stay. A group of five persons, including the two of us, was assigned to work together during the period. The other three were:

Maria Lutgarda Mata of IPEA
Maria Eugênia Dias de Oliveira of PRONTEL
John Tiffin of CEDO (Centre for Educational Development Overseas), the United Kingdom

The first two, representatives of IPEA and PRONTEL, were highly valuable in orienting us to the Brazilian reality, and provided expert guidance in helping us become familiar with the planning and the operations in the ETV field.

We were particularly fortunate to have Mr. John Tiffin as a member of the team. Tiffin had been in Brazil for over a year for the same purpose as ourselves, i.e. to plan the training of personnel in ETV for Brazil. He had given several of the training courses that had been offered and was able to contribute a wealth of knowledge gained from first-hand experience which would otherwise have remained virtually unknown to us. He was also able to contribute a large body of work such as the "Tiffin matrix", which he had already largely completed, and which became an important adjunct to the pilot model suggested here.

3. Chronological Description of the Mission

1972

17 March		Arrival in Brazil	
20	"	Talks at National Centre of Human Resources with Dr. Edson Machado, Dr. Luiz Alfredo Salomão, Dr. Luiz Antonio Macedo. Formation of the Working Group.	
21	"	Instituto de Educação da Guanabara -	D. Alfredina de Paiva e Souza, TV Co-ordinator, Pedagogical-Technical Personnel
		Fundação Centro Brasileiro de TV Educativa	Dr. Gilson Amado, President Comandante Paulo Dias, Director, Department of Exchange and Co-operation
23	"	TV Cultura (Fundação Padre Anchieta) São Paulo	Prof. Antonio A.S. Amora, Head of Instructional Division at the time.
		TV Educativa da Universidade de São Paulo	Andre Madri, TV Co-ordinator Prof. A.G. Ferri - Dean, School of Communications
		Centro de Pesquisas Educacionais Queirós Filho	Prof. Italo H. Serafino
25	"	Instituto de Pesquisas Espaciais	Dr. Fernando de Mendonça, Director-General Dr. Jorge Mesquita - Director, Project SACI
26	"		
27	"	TVU Recife	Dr. Walter Moreira, TV Co-ordinator, Pedagogical and Technical Staff
27	"		
29	"	FMTVE, São Luis	Prof. J.M. Macedo Costa, TV Co-ordinator Prof. A.L. Macedo Costa, Pedagogical Director Therezinha J.M. Rego, Production Director Prof. Sonia B. Vieira, Head of Research-Evaluation Prof.Francisco Leona, Head of Training Pedagogical and Technical Staff
3 April			Discussion of visits, determination of nature of report, report planning.
7	"		Meeting with Mr. Homero F. de Oliveira (USAID)

8 April 11 "	- TEA, MANAUS		Prof. Jack Soifer, TV Co-ordinator Prof. José Maria Cabral Marques, State Secretary of Education Pedagogical and Technical Staff Padre George Mateus, Co-ordinator of Activities of the Catholic Church in the Upper Amazon Region
11 "	onwards - work on report		
13 "	Meeting with Dr. Graciarena, Head of Unesco Mission		
18 "	Meeting with Mr. Rosson Cardwell, Mr. Dave Angel, AIR		
20 "	Meeting with Mr. Lothar Kraft, Adenauer Foundation		
24 "	Fundação Carlos Chagas		Prof. Carmen L.M. Barroso Prof. Alice, Researchers
	TV Cultura, São Paulo		Dr. Rafael Noschese, President Prof. Samuel Pfromm Neto, Head of Instructional Division
28 "	Summary of Mission - Dr. Edson Machado - CNRH Staff		
2 May	Summary of Mission - PRONTEL		

until 6 May Completing report, visit to Irdeb, Salvador, Bahia

4. The Unesco Directive

As stated in our Unesco contracts the mission directive contained the following tasks:

1. define educational objectives for the training of personnel at various levels;
2. establish programmes and methods; select teaching personnel for training as well as all necessary material;
3. select organizations for the recruitment of candidates and elaborate a system of tests for them and for the teaching personnel;
4. reformulate the project if necessary and proceed to the selection of teaching personnel and counterparts;
5. specify the necessary equipment and estimate costs.

5. The Response to the Directive

It is our feeling that the most important achievement of our mission was that we were able to acquire a large amount of knowledge of the Brazilian reality concerning educational television. However, time did not allow us to properly apply this knowledge and put it into full use.

Due to the short time of the mission and the changed conditions that we found on our arrival in Brazil (e.g. the establishment of the new co-ordinating agency, FRONTEL), it was necessary to somewhat redefine the aims and tasks of the mission so they could become realistically attainable in the time allowed.

In our estimation we have succeeded in complying with the first directive, and in providing a logical blueprint for the Brazilians to follow in achieving the other three aims.

The old maxim "give a man a fish and you feed him for a day; teach a man to fish and you feed him for life" was our guide in this endeavour. We had read the reports on the various training courses that had been given in the past for instructional television production personnel, and heard first hand reports on several of them. We had observed selected programmes at each station; we had seen the production facilities; and where there was organized reception, we had visited in the schools and community centres. We heard the managers and staff of these stations describe their problems and we formulated rather specific ideas about training needs, both expressed and unexpressed, in each locality. We could have listed these needs and made recommendations. However, this would, we felt, have served merely to "feed the man" for a day. Conditions in Brazilian Educational television change greatly from year to year. Plans and reports become obsolescent in two years or less and are thenceforth virtually ignored. We considered it much more important to analyse the process by which we came to our conclusions, expand and generalize upon it so that it would be applicable in essentially any instructional television situation, now or in the future, and present it in the form of a model which could be applied, by FRONTEL Brazilians, probably.

This tool is called the Brazilian ITV Training pilot model: Modelo Piloto de Treinamento para Televisão Educativa (MOPITTE). We have limited it to instructional television, a term which will be defined presently, eliminating from our present considerations the area of cultural and informational television which constitutes a large part of the service provided by many educational television stations.

Instructional television, as we define the term, is not limited to broadcast services but may also be disseminated by wire, or even by recorded means using video tapes or cassettes that are played back like phonograph records or films, at the point of reception.

Instructional television, however, is limited to services designed for the use of some organized system of instruction. For this reason it is more than merely a system for the production and a system for the transmission of programmes. There is the responsibility for generating supplementary and co-ordinated materials in other media such as print or radio. A vital part is the responsibility to organize reception and supervise utilization of the programming. Without a programme of evaluation there will be no basis on which changes for the better can be made, and this requires a research staff. A further discussion of the instructional television system will be found in the body of this report where the pilot model is being described.

Cultural and informational television is eliminated from the model, as indeed it has been from the ETV training courses that have been given in Brazil in the past, because it covers such a wide range of subject matter, requires a high standard of artistic quality in production, and requires different techniques and approaches from the instructional. Training in this area would require different selection procedures. Cultural television could include things as complex as the televising of a symphony orchestra or the production of dramatic or operatic programmes, or things as specialized as sports and news programmes. A producer of such programmes must respectively know music, or dramatic directing, or the sport being televised, or he must have a background in journalism. By the same token the producer of instructional programmes must have an intimate understanding of the learning process. The selection of personnel for training will be different between these two kinds of educational television and the training process itself will be different.

The pilot model that we have constructed is designed as a tool to aid the ITV planner, or analyst or national co-ordinator, to do the following things:

1. To determine training needs of new instructional TV organizations, including equipment operation and maintenance, printed media production, utilization of programming, and evaluation of the entire system, as well as the production of instructional TV programmes. (The last area alone has been the sole concern of most ETV training to date in Brazil).
2. To diagnose training (or retraining) needs of existing ITV organizations, and to distinguish between true personnel training needs and problems that arise from other causes.
3. To determine the most appropriate alternatives in regard to type of course, i.e. whether it should be concentrated or intermittent, general or specialized, and where it could best be given.
4. To estimate the costs and other resource requirements for each such alternative, so that a selection of the most practicable can be made.
5. To design the course (or courses) that have been decided on.
6. To select candidates for training on the basis of aptitude testing.
7. To select teaching personnel.

This pilot model needs testing, after which some revision may be required. It should then provide Brazilian instructional television with a tool for continued use, not only during the period of establishment of instructional broadcasting and closed-circuit organizations, but also over future years for the constant improvement and up-grading of instructional television services. It should have application anywhere that ITV is envisaged.

With a minimum of adaptation it should be applicable to any other country. Admittedly the model as it stands is preliminary and it has been called a pilot model for that reason. It will have to be tested and revised. Unesco may wish to undertake this task, with the intention of emerging with a tool which can be used by future Unesco analysts in assisting other countries.

II. OBSERVATION OF THE BRAZILIAN REALITY

This section has been designed to describe the reality in which ETV in Brazil has been functioning and being developed. Due to the short time of our mission, this observation should be considered an impression rather than a study.

The basic structure of our visits included formal and informal interviews with management and staff, survey of facilities and production output and written material. We enjoyed a warm welcome in all our contacts throughout the country, and a climate of mutual trust and understanding.

In summing up these visits we have found great help in the written material prepared by the staff of Project SATE and the National Centre for Human Resources (ETV Diagnostic) and by USAID/Brazil publication, "New Technologies and Education in Brazil", written by Mr. Homero F. de Oliveira and published in May 1971.

Common views and problems

1. Training as a solution to all problems

We have detected a strong tendency on the part of the stations we visited to ascribe all of their problems to a lack of training. Instead, the following of inefficient working procedures or the lack of proper facilities are often the prime factors.

2. Disproportional emphasis on production

In many stations there is a tendency to overestimate the production aspects of ITV and to underestimate others, such as organized reception, utilization, evaluation and feedback. Many of the problems are located in these other areas, as well as the greatest future needs for training.

3. Concern about "the third man"

Most of the high-level staff expressed their concern about the "new-man" in ETV. This concern has its origin, we think, in two types of imbalance concerning ETV in Brazil.

The first is mentioned above as a disproportional emphasis on production but has an additional aspect - production staff tend to emphasize their problems as central, while educationalists often find themselves against this tendency, without professional knowledge of television. Thus these two types of personnel do not find common grounds to solve station's problems.

The second factor, which in a way explains the first, is the fact that many producers and directors came to ETV from commercial stations, bringing along practices which are not very suitable to ETV.

This situation points out the necessity to create the ETV-man, who is able to combine those factors and settle the imbalance. This could not be done only by training. Rather, it would be achieved by the formulation of a basic philosophy of ETV in Brazil.

4. Lack of Well-Defined Objectives

The definition of objectives is another problem area. We found stations that did not specify their objectives at all, others defined them in very vague and general terms, while a third type defined objectives that are incompatible with the structure and the capacity of the station.

5. National vs. Regional/Central vs. Peripheral outlooks

Some stations resented the lack of interest (on the part of national bodies) about what they do or plan. In connexion with existing plans to have national production centres distribute material throughout the country, questions arise such as different accents, how to emphasize local cultural values, etc. TVU in Recife was required to erase the tapes containing 418 already produced Madureza lessons, after it was decided centrally to broadcast only the series produced in São Paulo. They resented the decision but undoubtedly would have accepted it better, had someone at least looked at the local programmes and evaluated them first.

6. Technical Problems

The diversity of equipment (American, British, Japanese, Brazilian) emphasizes problems of maintenance and technical training. This lack of standardization aggravates the spare parts problem and prevents exchange and mutual help between stations: lack of materials such as video tapes becomes a problem of a very serious nature.

Stations are compelled to erase programmes in order to reuse the tapes, even when management is aware that erased programmes will have to be recorded again and again. The station at São Luiz has already re-recorded one series four times.

1. Instituto de Educação da Guanabara

Date of visit: 21 March 1972
Talks with: Dna. Alfredina de Paiva e Sousa, (TV Co-ordinator) pedagogical and technical personnel

Since 1967, the Institute has been conducting a pilot-project of utilization of ETV. Its operational objectives are defined as:

(a) Training of technical and production personnel;

(b) Integration of TV as a complementary tool for the work of teacher-training organizations;

(c) production intended to improve educational techniques;

(d) direct participation in the improvement of commercial television standards using the influence of ETV teachers-producers.

Organizational Pattern

The administration of this closed-circuit experiment is connected with the Institute Management, which operates within the framework of the Secretary of Education in Guanabara. The internal administration of the closed-circuit project is not structurized formally.

Facilities

The closed circuit installations, placed at the Institute building include a small and a medium size studio, whose equipment is heterogeneous. The first is equipped with two Japanese (National) VIDICON cameras (1 zoom), switchboard, audio system (2 microphones), one VTR (1/2"), an improvised telecine system (1 film projector, 1 slides projector, 1 acrilic screen and 1 VIDICON camera). The second studio has EMI professional equipment - 3 cameras (1 Orthicon Image, 2 VIDICON, 2 zoom lenses), audio system and switchboard. Productions made in this studio utilize the telecine and VTR material above.

Lighting equipment is rather poor and so are acoustics and air conditioning.

Production Output

39 programmes are recorded on VT - 20 of which on mother-education, 4 on hygienics and food, 3 on administration training and 12 on teachers training and recycling. Additional 64 programmes for these series exist on scripts, i.e. ready for recording.

The Institute transmits a 20-minute programme daily for its own normal school students in the classrooms.

The following table describes the production planned for the future, which includes 33 weekly hours (6 per day), to be produced in co-operation with commercial stations.

Hours per week	No. of programmes	Subject	Length	Record
12	48	Education	15 min.	no
6	24	Teachers Training	15 "	yes
6	36	Children's Programme	10 "	no
3	18	Socio-Economics	10 "	no
6	36	General Studies	10 "	yes

Personnel and Training

The closed circuit system has been operated by a rather small staff, as follows:

Administration - 4 (teachers)
Planning-Production and Evaluation - 7 (teachers)
Direction - 1 (teacher)
Cameramen - 3
Lighting - Floor Manager - 1
Audio-technician - 1
Control-technician - 1
Arts and Graphics - 2 assistants (not on payroll)

During the period 1967-1970, the Institute organized courses for TV teachers, and trained more than 350 persons. These courses included in 1969, for example 124 teachers from the State of Guanabara and others, as well as 18 technicians and cameramen. During 1970-1971 the Institute prepared 60 teachers for ETV work, in three courses of 60 hours each, during 30 days each.

The teaching staff was basically the Institute permanent staff, with occasional additions of guests.

These courses included lectures as well as practical demonstrations and production of programmes by the trainees. Some of these programmes were recorded and transmitted by one of the commercial stations.

General Comments

1. We have been very impressed by the enthusiasm that characterizes the staff at the Institute. Being a pioneer in the ETV field in Brazil, this organization has managed to carry on a big effort, in spite of the lack of funds and the precarious conditions of work. These efforts have undoubtedly contributed to demonstrate the possibilities offered by television to solve some of the critical problems of education in Brazil, and especially to the problem of the educators attitude towards ETV. In this sense the work being conducted at the Institute seems to be very important.

2. The experience acquired by this project, its location within a teacher-training organization and its position as forerunner in ETV in Brazil has brought us to think that it could function within a planned system of training of personnel in Brazil, providing that several basic conditions are met.

3. These conditions seem to be: (a) On the basis of the existing personnel and equipment, efforts should be made to concentrate the institute activities in fewer and more definite objectives, such as the basic preparation of teachers (or monitors, or other educational staff) to integrate new technologies into their work, in terms of attitude as well as of knowledge of the medium and its possibilities. A definition of objectives, compatible to the actual capabilities would be a basic condition; (b) in order to do so (or to meet any goals), several critical areas call for further analysis, namely: administration (for example no data is available for calculating the costs of a considerable part of training activities, the internal division of labour is not well defined, etc.); evaluation of training, which to the present has been carried on rather unsystematically; further rationalization in the areas of operation and maintenance of equipment, especially preventive measures, and improving the professional level of the existing staff.

2. Fundação Brasileira de Televisão Educativa (FCMTVE)
Brazilian Foundation for Educational Television

Date of visit: 21 March 1972
Interviewed: Dr. Gilson Amado, President,
Commander Paulo Dias de Souza,
Director Department Interchange and Co-operation

The Brazilian Foundation for Educational Television is the first organization created to execute activities in educational television on national level. Legalized under law 5.198 of 1 January 1967, with the purpose of producing, purchase and distribution of audio-visual material, destined to educational broadcasting.

Administration

The foundation is an organization ruled by public law, under administrative and financial autonomy, executing its activities by means of four basic organs: General Assembly, Curators Council, Presidency and Directors Council. Its organization system is based on special co-ordinations, distributed as follows:

Operation co-ordination (technique and production);

Planning co-ordination (market research, planning research and projects);

Administration co-ordination (budget, general services, personnel and methods and organization).

Two departments complete the system: personnel education and improvement and co-operational interchange.

Facilities

1. Closed Circuit System

Since 1970, the foundation disposes of a small TV-studio, planned for personnel training and pre-testing of the programmes to be produced in the Telecentro.

Basical equipment is Philips, consisting of two moveable cameras "Plumbicon" (Zoom-lens) and one VIDICON..

The telecine has a 16 mm projector and a slide projector. The whole equipment is provided with remote control and is of good quality.

The cutting-table is coupled with a trick-table.

There are two helicoidal recorders 1" (VTR - 7.800) and a transversal quadriplex 2", all Ampex.

The audio-table disposes of 6 channels, where microphone, audiotape and two record players are connected.

Illumination is quartzo-iodine (Colortran), providing more than 100 lumens/ $feet^2$. The control is executed by quick-lay from the cutting room.

The studio's illuminated area is 35 m^2.

2. National Productions Centre (Telecentro)

In final stage of construction and installation, covers a large area with capacity for three studios of reasonable proportions and room for the foundation's various technical and administrative departments. One large studio, 600 m^2 and completely equipped is ready to start production.

Production Output

The foundation's closed circuit was occupied up to the present date with the production of medium-levelled educational films in the following areas, language, general knowledge, mathematics, science and civil rights and moral, destined to fill up gratuitous and obligatory broadcasting hours, which the commercial stations must dedicate to education (Directive 408).

Besides these activities, the foundation produced in 1970 a series of short programmes of one minute each, tied to the area of social pedagogy and cultural programmes of the same purpose.

The foundation's first activities on a larger scale in the area of productions destined to education and already utilizing the telecentres new installations is being realized. It is a course of elementary school revision for adults, dedicated to educational recuperation for those who for a short time frequented elementary school but do not possess a concluding certificate of elementary school.

The course with a length of approximately 4 months is kind of a "novela" of 100 chapters, each 30 minutes, utilizing as key-figure the typical Brazilian "João da Silva". The programmes will be broadcasted throughout the whole country by commercial and educational stations, preferring the evening hours, considering an estimated audience of about 200,000 persons.

General Comments

The fundação has reached, at this date, a critical phase in its existence. A small-scale organization has grown up physically and now has to adapt to a new reality. With the inauguration of the new ultra-modern Telecentro and the expected start of production in mid-May, further emphasis will be given to this problem. Even though its objectives are fairly clearly defined, the fundação still faces the danger of trying to apply in the new system inappropriate practices brought along from earlier days.

It seems that this applies especially to the areas of (a) administration and decision-making, where modern and rational methods should parallel the sophistication of the equipment, (b) a higher degree of professionalization of personnel as well as production methods and processes, and (c) the development of a well-organized system of maintenance of equipment which is indispensable for a smooth operation.

These needs have been recognized by the fundação and clearly expressed by its President Dr. Gilson Amado, who said "gone are the days of spontaneous, disorganized pioneer initiatives and efforts, we have reached a new era, in which rationalism and professionalism are essential, along with goodwill and enthusiasm".

It is our impression, however, that the Fundação faces a real problem in trying to translate this recognition into operational terms and practical decisions. If it succeeds it will undoubtedly be a major influence in the development of ETV in South America, both in production for nation-wide use, and in the central training of personnel.

3. TV Cultura (Fundação Padre Anchieta) - São Paulo

Date of visits: 23 March 1972 and 24 April 1972
Talks with: Prof. Antonio A. Soares Amora (Head of Instructional Division at time of first visit).
Dr. Rafael Noschese, President of Foundation
Prof. Samuel Pfromm Neto (Head of Instructional Division at time of second visit).

The Foundation was created by state law in 1967, with the objective to promote educational and cultural activities through radio and TV. It started to operate

in 1969. In so far as ETV is concerned, the foundation operates a station, produces programmes and promotes the expansion of its objectives through agreements with other entities.

Organizational Pattern - The foundation functions through six divisions:

Co-ordination and Planning (external contacts, publicity), Administrative (General Services), Technical (development and maintenance), Cultural (production and adaptation of films, newsreels, etc.), Production (preparation of visual materials), Artistic, Educational (instructional activities). The organizational structure of the foundation includes the Executive Management, Director, Chairman, Deputy Chairman and Economic Director holding a 3-year tenure) and the Curators Council, (35 ex-officio members). Among these are the State Secretary of Education, State Secretary of Finance representatives of various educational and research institutions. The heads of divisions are subordinated to the Chairman.

Facilities

In so far as ETV is concerned, the foundation has two studios of 150 sq. metres and a third of 540 sq. metres. The studios have reasonable lighting facilities (quartz-iodine) and are served by 5 Image Orthicon and 2 VIDICON cameras. Three VTRs (RCA TR-70) are available. Control rooms enjoy the following facilities: 2 switchboards fully equipped, 2 Telecine systems audio. The station has a mobile unit equipped with 3 cameras and facilities for recording and transmitting via micro-wave. TV Cultura is the only station in Brazil equipped with a TV Film Recorder (RCA Eastman-Kodak), which enables the station to reproduce 16 mm. kinescopes for distribution in various parts of the country. The station-transmitter reaches today a radius of 120 km. It is expected that within the near future, with the installation of a new transmitter, this radius will increase as to include 72% of the population of Greater São Paulo.

Production Output

The station produces 30 weekly programmes of an average length of 20-30 minutes each.

Programming has been developed along two main axes: cultural and instructional. The relative distribution as for 1970 (the latest available data) indicates that 78% of the number of hours on air are used by the cultural division (24% or 692 hours for artistic programmes, 26% or 750 hours for cultural programmes and 28% or 838 hours for news).

Examples of these are programmes acquired abroad from ORTF (arts), American Sources (Debbie Reynolds Show, etc.) and local production of musical programmes, panel discussions, talks, news, drama (especially the dramatic series "Meu Pedacinho de Chão", transmitted nationwide daily) and sports.

The Instructional Division accounts for 22% of the total number of hours (640 hours) in 1970. The initial decision to produce programmes for the existing educational system was changed in favour of meeting the needs of the unschooled population, characterized by a high rate of illiteracy.

The principal productions so far have been:

(a) Two series of "madureza" courses,(*) the first broadcast during 1969, reaching some 20,000 students, mostly between 16-25 years old. Some 5,000 students received passing grades. The second series is being transmitted now in São Paulo as well as in other states, Kinescopes being sent to different stations. It consists of 50 preparatory and 500 regular lessons of 20 minutes, complemented by a set of booklets, prepared by the station and printed and distributed by "Editora Abril". Two units are broadcast daily, including subjects such as Portuguese, mathematics, geography, history, natural sciences and civic education.

(b) Foreign language courses (English, French and German) based on a series developed by EBC, ORTF and Bavaria radio-TV.

(c) A series on Brazilian history.

A series on business administration is planned, including 160 programmes. The station produced pilot programmes on basic education and "Madureza Colegial" (for "Madureza graduates").

It is worthwhile to mention the plans to produce a Brazilian version of "Sesame Street", accompanied by a research and evaluation scheme. We had the opportunity to see the pilot-programme, which seems to be rather satisfactory.

Audience, Reception and Evaluation

No objective measurements are available as for the size and composition of the audience. It is the station's belief that 90% of the audience is reached in a situation of "home reception" and 10% in organized reception. We were informed that the organized reception reaches 200 to 500 "telepostos", being maintained by the municipality of São Paulo, private institutions and by the foundation itself.

Weekly and monthly tests are the main instrument for evaluation, including home as well as organized reception.

Personnel and Training

The only available data regarding existing personnel are concerned with the distribution of personnel by divisions, as follows:

Functions	Permanent staff	Free lancers	Total
Administration	100	-	100
Instruction	7	100	107
Culture and art	30	91	121
Production (Preparation of visual materials)	74	-	74
Operation and maintenance	57	42	99
	268	233	501

(*) "Madureza" is the Brazilian term for the out-of-school examination, correspondent to high-school level.

The majority of the staff at the instructional and cultural divisions work on a free-lance basis, especially the former, whereas the other functions - production (preparation of materials), operation and maintenance and administration use permanent staff, especially the former.

In so far as training is concerned, the available information is that the majority of the staff have not been trained especially for ETV. Studio personnel have some experience with commercial television, whereas planners, writers, production assistants and others were trained in an "emergency course", consisting of the analysis of 12 programmes. Monitors for organized reception (mainly teachers or university students) were trained during 12 hours, over a period of 4 weeks. Technical personnel have experience with commercial television, complemented by specific training at one of the technical schools.

The station admits outside trainees, mainly from schools of communications or from other stations. Basically, the station admits each week 4 trainees, who stay over a period of up to 15 days, working with different members of the staff, so that the total annual number of trainees is about 200.

General Comments

1. As a result of an agreement with one of the biggest publishing houses in Brazil and because it is the only station equipped with facilities for kinescoping, this station has a high potential for producing and distributing kinescope recordings and complementary materials throughout Brazil. Its dynamic character may be added as an important asset for production, as well as its sound financial basis.

2. It seems that the station is oriented towards general cultural rather than towards instructional production. One of the results of this orientation seems to be that the station finds itself competing for the audience with the commercial stations, while the high level of its programmes may attract educated audiences only. Adapting contents to the commercial station type of programme would deviate TV-Cultura from its declared objectives.

3. This orientation prevails also where instructional production is concerned and is expressed by weaknesses in the basic attitude towards instructional programmes such as little concern for systematic evaluation, by itself and as related to planning; practically no specific training; neither for production nor for reception personnel.

4. During our stay in Brazil, the managing organs underwent personal changes. Thus, the information on TV-cultura may be considered inconclusive.

5. It is important to mention Prof. Amora's view that with the changes in management, the orientation will probably be more inclined towards instructional production, a fact that may contribute to overcome some of the existing difficulties, such as the definition of objectives and the proper means to achieve them.

During the second visit to the station, we met the President of the Anchieta Foundation, Dr. Rafael Noschese and the Head of the Instructional Division, Prof. Samuel Pfromm.

Although the visit took place a short time after the new management assumed their responsibilities, we were informed about certain policy changes, as follows:

1. The basic orientation emphasizes instructional programming more than it has been in the past.

2. The station will develop a new training plan for outside trainees and will co-operate with other organizations, especially PRONTEL, in this subject.

3. The station will emphasize utilization, including reception (training of monitors) and evaluation (including pre-testing of new productions before they are broadcast).

4. TV Educativa de Universidade de São Paulo

Date of visit: 24 March 1972
Talks with: André Madrid (TV Co-ordinator)
A.G. Ferri (Dean, School of Communications)

This closed-circuit system was established in November 1967, for the purpose of: (a) providing support to the teaching needs of the university; (b) training students of the School of Communications; (c) transmitting in open circuit cultural, civic and educational programmes, as well as "maintaining liaison" with outside ETV organizations and serving as "a prototype and service agency for future ETV activities" undertaken by other bodies.

Organizational Pattern - The system is directly system is directly subject to the president of the university and is under the direction and supervision of a commission of five teachers from the radio and TV department and the Regional Centre of Pedagogical Research (INEP), as well as two elected by the university council and the chairman, named by the president of the university. The technical direction is under the responsibility of the School of Communications.

Facilities

A system of coaxial transmission was installed in 1970 and there are plans to cover the entire campus in the near future by a 4-channel microwave system, part of which is already installed. Presently, transmission reaches some 10 faculties by means of coaxial cables and one micro-wave channel.

Production facilities consist of one studio equipped with 3 cameras (1 zoom), telecine, complete control system and one videotape recorder (Ampex VR 1100). A smaller studio has been completed and could be used for colour-production. A mobile unit exists as well.

Full film facilities exist at the film department at the School of Communications.

Production Output and Personnel

Programmes are prepared by teachers with the assistance of the TV staff (which includes students) and an arts and graphics section. Production so far has included lessons in dentistry, psychology of education.

Reception and Evaluation

Programmes are usually transmitted to the different school as supporting or complementary material.

It is worthwhile to mention the lessons in psychology of education, which are developed in the framework of an "Integrated Course of Psychology" (some 1,200 students divided into three groups). This course operates as follows: students read a selected bibliography, then attempt to answer written questions (supplied in advance), while noting problem areas; they then watch the TV programme, followed by discussion in small groups, under the orientation of teachers and a final evaluation test, followed immediately by reinforcement instruction on the most frequent mistakes. This is one of the unique experiments in Brazil on the use of ETV as an integral part of the instructional system (the other is São Luiz, Maranhão).

General Comments

It seems that the major importance of this closed circuit system lies in its combined orientation towards both education and production. Students at the radio-TV department, before performing practical work and going through the regular course in communications, are required to take courses in didactics, psychology of learning, etc. It is our opinion that this trend could lead towards regarding the University of São Paulo as a training centre for a new type of personnel for ETV in Brazil, who is oriented not only to production nor to education but to a combination of both.

As in other instances, it seems important to perform a further analysis of the objectives of this system, both because of the rather vague terms employed and their compatibility with the actual and future capacity of the system.

5. Instituto de Pesquisas Espaciais (INPE) - Space Research Institute

Date of visit: 25 March 1972
Talks with: Dr. Fernando de Mendonça (General Director), Staff of Project SACI

The Institute is defined by a Presidential Decree of 1971 as "the principal agency for space research in the civilian scene". It has been in operation (under different names and definitions) since 1961, working and planning to work a research in the fields of communications, education, meteorology, natural resources, transfer of technologies and systems analysis as applied to Brazilian problems and within the government plans for development.

Because of the nature of our mission, we concentrated our visit on Project SACI (Advanced System of Interdisciplinary Communications), whose general objective is to utilize "the systems approach to the study of the application of a Brazilian geostationary satellite to improve the capabilities of the country's educational system".

Project SACI is almost unique in Brazil, as it deals with the use of advanced technologies and the educational techniques and processes of planning, teaching, learning and evaluating as integrated systems. Thus, the specific parts concerning ETV include a comprehensive educational experiment in North-eastern Brazil

(State of Rio Grande do Norte) using a terrestrial distribution to simulate the future satellite service. The experiment consists of educational diagnosis, teacher, pupil, school and local leadership survey - effective lesson formats, both for lay teacher upgrading and for regular students - accompanying texts, an evaluation system, development of receiving hardware, a feasibility study on a Brazilian educational satellite as a means of providing opportunity for first class education anywhere in Brazil. As well attention is given to the uses of radio per se and its relation to TV as an instructional tool. Five hundred schools will be involved almost throughout the entire state of Rio Grande do Norte. Some 70% of these are one-room and one-teacher schools, "escolas isoladas", which predominate in most of the rural areas of the country.

During 1971, the institute performed surveys to characterize the audience - the teachers, students and schools to be involved in the experiment; pre-tested a questionnaire to be used in a survey of local leadership in Rio Grande do Norte. They started developing production and transmission equipment, completed the studies on the integration of systems via satellite and surface and started to plan a national system.

Plans for the future are:

Short Term - 1972 - Start a training course for some 1,800 lay-teachers in Rio Grande do Norte; continue to develop ground equipment; start producing lessons for 1973; start evaluation of activities in 1972; start implementing plans for the National System; survey the local leadership in Rio Grande do Norte; complete production of lessons for 1972, etc.

Medium Term - 1973 - Continue development of equipment, start production of lessons for 1974, complete production for lessons for 1973, etc.

Long Term - 1974 - Complete production of lessons for 1974;

1975 - Use satellite ATS -F; complete development of equipment, production of equipment.

1976 - Start satellite transmission in framework of National System.

Production output

At the time of our visit we were told that 178 lessons were taped and ready for use and that 121 scripts were completed and waiting to be produced.

Training of Personnel

A three month course on ETV production was conducted at INPE early in 1971 by a team of British experts from CEDO. The present production staff consists mainly of graduates of this course. Despite the precarious facilities, the results seem to be satisfactory, although no follow up training has been carried on since this course.

Project SACI includes the following functions and operational teams:

(1) Policy level - management, planning and control, systems engineering.

(2) Execution level - teams on the following subjects: planning and educational analysis, development of materials, production and training, complementary services, ground equipment engineering, local team at Natal, Rio Grande do Norte and special affairs (computers, etc.).

General Comments

1. Project SACI is unique in Brazil; the eventual service which it simulates, would be unique in the world if it should come into being. We know of no other project for the use of satellites in instruction that is this extensive and this far under way.

The experience in Rio Grande do Norte will yield much useful knowledge equally applicable to conventional terrestrial systems. Such subjects as the logistics of equipment maintenance in remote areas, the motivation and training of rural teachers in proper utilization, methods of evaluating and the like will receive considerable knowledge from this experimental project.

2. In terms of planning and organization this project is far ahead of others in Brazil.

3. However, the project seems to be structured in a way that does not encourage co-operation with other organizations. The strong motivation to achieve the objectives of the project itself, the isolated physical environment where its facilities are located and the strong team-orientation existing at INPE have caused it to become rather closed. It is our impression that ways should be found to enable the experience acquired by Project SACI to be integrated into the whole pattern of ETV in Brazil. This type of co-operation and sharing of experience would prevent Brazilian ETV from wasting valuable resources.

6. Televisão Universitária de Pernambuco (TVU)

Date of visit: 26 and 27 March 1972
Talks with: Dr. Walter Moreira (Co-ordinator)
Mr. José Maria Marques (Public Relations)
Members of staff.

This station, which was inaugurated in November 1968 and is sponsored by the Federal University of Pernambuco, is the first open-circuit ETV in Brazil. Its objectives, as stated officially are: (a) to transmit regularly cultural programmes, with the participation of members of the faculty and student body of the university; (b) to participate in educational projects, as oriented and co-ordinated by university organs; (c) to perform specific functions in the university context, such as: transmit events and activities taking place, provide training and serve as a laboratory and take the responsibility for a future university closed-circuit system.

According to information supplied by the station to the National Centre of Human Resources, one of its objectives is to persuade the television viewer that education is indispensable for his personal development, better employment, and most satisfying use of leisure time.

The station aims to be a multinational training centre (and has started to act in this direction by entering into an agreement with the organization of the American States), as well as a Regional Centre of ETV (agreement with SUDENE, Superintendency for the Development of the North East).

Organizational Pattern

The station is directed by a technical and administrative council, formed by teachers of the university and is subordinated to the president of the university. The general co-ordinator functions as connexion between the policy and operational levels. The internal division of labour, as described to us by the staff, differs slightly from those in our written sources. Since this description comes last in the chronological order, we assume it is up to date: Management (including secretary, assistants, library); Technical Division (maintenance and operations); Administration (personnel, materials, accounting, general services); Production, subdivided into Instructional (research, planning, control and evaluation) and Cultural (music, film and theatre, news, sports); Realization, subdivided into Programming (traffic, film, sound, control, make-up) and Cenography (arts design and execution).

Facilities

There are two studios (356 and 268 m^2) equipped with 5 cameras, two telecine systems, control facilities, 1 VTR Ampex 1100, film equipment. Illumination is rather poor. There is one mobile unit.

A third studio, including an auditorium, which will permit the participation of a large audience is being built.

Production Output

The station is on the air for approximately 45 weekly hours, divided almost equally between cultural and instructional programmes. Two 20-minute programmes are recorded daily between 8 a.m., and 4 p.m. (4-5 hours work per programme). The station goes on air daily between 5-11 p.m.

The principal instructional programmes have been as follows:

(a) Madureza - 418 lessons of 20 minutes each were produced locally, totalling 140 hours of production. These programmes were broadcast over a 49-week period starting about the beginning of 1969. Evidently two lessons on different subjects were broadcast each weekday evening, except holidays, and re-runs were carried on Saturday for those who had missed programmes during the week. This course was re-run entirely during 1970. It should be mentioned that since the sponsors (SUDENE, INPS) decided to broadcast the "Madureza" series produced in São Paulo, the 418 lessons already recorded and broadcast were erased, due to the lack of tapes. Thus we were unable to view any of these lessons.

(b) Alphabetization - Sponsored by the Legião Brasileira de Assistencia (Philanthropic organization), the station produced 72 lessons of 20 minutes each which were broadcast daily over a period of 4 months.

(c) Basic Electricity - 52 lessons, 15 minutes each, transmitted twice a week.

(d) Foreign Languages - English, French, German, transmitted during 1969, about 10 hours each.

(e) Others, such as "Dynamic Reading" and "Yoga".

Cultural programmes are transmitted in the areas of theatre, music, cinema, journalism and children's themes.

Reception and Evaluation

The instructional programmes are designed for organized reception. The station initiated a system of "telepostos" for the courses of: Madureza (about 30-50), alphabetization (over 100) and basic electricity, maintained jointly with the sponsoring organization and the Secretary of Education of the State of Pernambuco. Five hundred Receivers (23") were donated by the Japanese TOSHIBA Company.

About 40% of the monitors in these telepostos have some pedagogical experience or training. Briefings are held by the supervisors (6) every 2 weeks, 5 hours each. At these meetings the monitors receive the scripts for the next programmes, so that they are able to prepare whatever is necessary.

A number of telepostos had to be closed down, since the station was unable to raise funds in order to pay the salaries of monitors who had already started. Presently, many of the monitors are volunteers.

Production staff have never visited the telepostos and their contact with the audience is made by meeting the monitors at the station, informally.

Regarding evaluation, the existing data does not allow us to draw significant conclusions. The main tasks for evaluation have been:

(a) Examinations especially concerning the Madureza and alphabetization courses. However, these measurements tend to be incomplete. The data for the first and second Madureza courses, indicate a rather low level of success, as measured by the percentage of students who took the exams (some 10%) and the percentage who passed (about 2.5%).

(b) One survey carried on in 1969 or 1970. The analysis of questionnaires administered to 1580 students of Madureza courses in 44 telepostos permitted the Telepostos Department to conclude that: (1) all monitors had difficulties on all subjects of the courses; (2) the majority of the monitors outside Recife were incapable of orienting the courses for which they were responsible; (3) the lessons in mathematics and history did not interest the students.

Personnel and Training

The total number of personnel in 1970 was 181, 21.5% of which (39) worked in the administration, 24% (43) technicians, 12.5% (23) worked in the programming

functions and 42% (76) in production functions. No details are available as for the professional background, except for several producers who came from commercial TV. Since 1967 the station has been organizing training courses, in subjects such as operation and maintenance, (1967), production and realization (2 courses in 1968, 3 weeks each, with a total of 62 trainees, of which 17 are being employed currently).

General Comments

According to our informants, it seems that the special position of TVU as pioneer in open circuit transmission in Brazil has been hampered by several difficulties; especially its administrative lack of flexibility and the lack of funds. Being subordinated directly to the university, the station management feels the lack of a necessary degree of freedom in order to perform the functions of ETV. For this reason and following almost all other stations, TVU is hoping to achieve foundation status.

Beyond these considerations of policy, it is our opinion that the following problems should be analysed in a more systematic way than we were able to do in our short survey:

(1) The improvement of team-work and the creation of common grounds for the work of educationalists and production staff.

(2) The usual work practices are based on improvisation rather than on long, medium-or even short-term planning. The situation in which major decisions are expected to be taken, such as the legal status of the station or of unpopular decisions, such as the disregard of the work invested by the staff in producing over 400 Madureza programmes, transmitting them twice and having them replaced by "outside" (e.g. São Paulo) material.(1)

(3) No systematic evaluation procedure seems to exist.

(4) There seems to be a high degree of awareness on the part of the staff to this situation, as well as a strong motivation to improve it.

7. Fundação Maranhense de Televisão Educativa - São Luiz, Maranhão

Date of visit: 25-27 March 1972
Talks with: Prof. J.M. Macedo Costa (Co-ordinator),
A.L. Macedo Costa (Pedagogical Director)
Terezinha M. Morais Rego (Director of Production),
Production, Reception Training, Evaluation Staff.

FMTVE is the only organization in Brazil which has succeeded in having ETV as the instructional system (for grades 5-8) rather than merely using it as a complementary tool. The structure operating in São Luiz replaced the conventional school by "educational bases" and the traditional classroom by the "student nucleus". The teacher was replaced by a combination of a twenty-minute television programme and the "orientador de aprendizagem" - a Maranhense version of the "monitor" who is not a teacher but a co-ordinator-stimulator of

(1) While writing this report, we were informed by EMBRATEL that it has decided to consider TVU as a Regional Production Transmission Centre.

students activities. The "learning situation" emphasizes "active exposure" on the part of the students, by means of: (a) organization of the nuclei into teams working on specialized areas; (b) training the students in group dynamics and encouraging them to participate and (c) creating a local version of the tutor system, by which it is the responsibility of the team to progress collectively, so that the weaker students are assisted by their team mates.

The creation of this system is the outcome of several factors: (a) the necessity to match the educational system at the medium-level (5th to 8th) to the quantitative demands. For example, in 1968, 34.4% of the 7-11 year old population were in elementary school (grades 1-4) whereas only 4.8% of the 11-21 year old population studied at grades 5-8. (b) Since most schools were private, (only two state schools), the largest and poorest segment of the population was deprived from an equal opportunity and an important share of human resources was being wasted. (c) Additional factors were the extreme shortage of qualified teachers and the out-dated curriculum.

The introduction of this version of ITV in closed-circuit in 1969 and in open circuit in 1970, has been the solution to a Maranhense problem, thus becoming a functional and integral part of the educational system of the State.

According to this situation the objectives were defined as follows:

1. To answer the demand for education at the medium-level, which was much greater than local supply.

2. To become a centre of educational innovation at this level.

3. To become a centre of study, research and training for ETV personnel in Maranhão.

Organizational Pattern

The foundation was created by State Law in 1969. It is chaired by the State Secretary of Education. Executive rôles are performed by 3 directorates: pedagogical, production and administration which are subject to a general coordinator. The pedagogical directory includes the following functions: curriculum, educational communication (scripts and other written material), learning (aprendizagem), school affairs, research and evaluation, educational improvement, complementary education.

The production directory is responsible for AV materials and equipment.

Facilities

There is one small and one medium sized studio equipped with cameras, VTR, telecine and control facilities.

Production Output

The station aims at the production of about 90 weekly 20-minute lessons, as required by schedule. Production schedules lessons in Portuguese, mathematics, geography, sciences, history and civic education, English, "Brazilian Socio-Political Organization" and initiation to work.

Production procedures are as follows: there is a teachers' team in charge of the lessons of each discipline, determining educational planning, elaborating scripts and complementary materials. Completed scripts are re-examined by the planning group.

The material is then transferred to the production division which is responsible for the programme itself.

Organized Reception and Evaluation

About 13,000 students attend the 268 students' nuclei in the 15 "bases" in São Luiz. Each nucleus includes 49 students organized in 7 groups and is guided by one "orientador de aprendizagem". In addition to that number, 2,230 students, organized in 45 groups attend the Madureza course (produced by TV Cultura in São Paulo). The orientadores are controlled by 15 supervisors, besides the regular students. Each of the 7 groups within a nucleus has a definite area of work (science, arts, crafts, civic-religious, social action and political action). During the year, each student works in each of these areas.

There are two strategies employed in the "learning-cycle" as defined by the staff:

(1) For general studies:

	Steps	Functions
1.	Problem-situation (TV-programme)	Stimulus (Challenge)
2.	(a) individual research	(a) individual reflection
	(b) group discussion	(b) collective reflection
3.	(a) Report	(a) collective answer
	(b) Test	(b) individual answer
4.	Debate	Check of answer

(2) Psycho-Motor Skills (such as foreign languages)

1. Demonstration
2. Repetition
3. Verification and correction
4. Further repetition

The evaluation procedures aim to be systematic and permanent, analysing all the elements involved in the process - students, orientadores, producers, productivity and efficiency, quality of contents, global effectiveness. In so far as the student is concerned the variables measured are: attendance, punctuality, participation, interest, capability of effort, organization and work methods, self-correction, loyalty and respect towards other students, imagination, initiative, extra-curricular culture, social behaviour and assimilation of subjects. These variables are measured by the following procedures: monthly test on each subject, evaluation-of-learning, student-observation, self-evaluation.

The programmes are evaluated by special forms, and so is the assistance provided by the Orientador. There is an annual evaluation of attendance and achievement.

Personnel and Training

The number of persons working for FMTVE is currently 393, divided as follows:

15 planners (development of curriculum, etc.)
34 programmers (elaboration and execution of programmes)
6 writers (complementary materials)
280 orientadores de aprendizagem (monitors)
15 supervisors (former orientadores)
1 educational administrator (student services)
10 assistants " "
5 researchers
1 co-ordinator of training
1 co-ordinator for complementary studies (physical education etc.)
3 supervisors " " " " "
1 co-ordinator of cultural production
14 administration, technical and other services

Persons for all functions have been recruited within the organization, except the orientadores de aprendizagem.

The entire staff consists of teachers, with the exception of the orientadores, out of whom only 20% are qualified teachers, 50% to 60% are university students and some 20% are teachers-schools students.

Accordingly, there is a system of promotion/rotation which allocates personnel both with pedagogic experience and knowledge of the educational system as well as ETV.

Most of the staff have more goodwill and experience on the job than professional training. One basic course on ETV production took place in São Luiz at the beginning of 1972. This course was organized and executed by a team of CEDO, under the co-ordination of Mr. John Tiffin. This course has been considered successful, but of course it did not solve problems of training continuity, new staff and other aspects such as evaluation, electronics, AV and graphics, etc.

General Comments

This experiment may be considered as a significant facet of ETV by Brazilian as well as by international criteria. It is unique in integrating ETV into an educational system. It is also unique by being recognized by the state as the medium-level educational system, to the extent that this is the largest item in the state budget. It is based on the educational experience as well as on the contagious enthusiasm of the personnel and presents a magnificent example of pedagogic leadership on the part of its management.

This system presents a very promising basis for the application of continuous training, which could raise the staff to professional level, and undoubtedly contribute to fulfil the well-defined objectives.

As well, it is our impression that steps should be taken in order to:

(a) improve evaluation procedures to the extent that the enormous amount of data would be analysed properly.

(b) improve the technical level by providing enough facilities as well as adequate maintenance.

8. Fundação TVE do Amazonas

Date of visit: 8-11 April 1972
Talks with: Dr. Jack Seifer (TV Co-ordinator)
J.M. Cabral Marques (State Secretary of Education)
Padre G. Mateus (Co-ordinator of activities of the Catholic Church in the upper Amazon area)

TEA is a private foundation, functioning in connexion with the State Secretary of Education. It is autonomous in regard to its financial and administrative operation. The legal objectives of the foundation are to maintain educational and radio and TV stations for the purpose of promoting education and culture "by means of the transmission of images and sound". The station was formally inaugurated in March 1971.

Organizational Pattern

On the policy level, the foundation functions through:

(a) The Administrative Council - which establishes administrative and technical structure, manages properties and formulates operational, financial and personnel policy.

(b) The President - who is the State Secretary of Education.

(c) The Fiscal Council - which is in charge of auditing.

Several departments were mentioned by name, such as production, pedagogics, and evaluation, but we have the impression that there is not a clear functional division of labour. This might be one of the results of the very vague definition of objectives.

Facilities

The station operates in a former school building. It has a studio of about 135 sq. m., equipped with one image orthicon and two VIDICON cameras of Japanese make. There is also a provisional telecine system and two video tape machines of the 1-inch size. ½-inch width video tape is used for news and special events recording in the field, then re-recorded on to 1-inch tape for broadcast. The transmitter radius is about 50 km., reaching a population of about 360,000.

Production Output

The station is on the air about 4 hours daily, except Sunday. It transmits a Madureza course (produced in São Paulo) and produces cultural childrens and news programmes to be transmitted locally. They have recently started production on a series of about 70 French lessons, assigned to the station by PRONTEL, with the purpose of eventual national distribution.

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General Comments

The ETV station at Manaus has the poorest facilities and the lowest level of financial support and the lowest level of production quality of any of the ETV centres that were visited. At the same time it has a very vigorous management and given proper resources could become an important element in the improvement of the educational system in that city. There are very great educational needs in Manaus, although it is the rural areas of the state - the small villages along the rivers - that are in the greatest need. The school system of Amazonas can only accommodate 50% of the children between the ages of 7 to 14. Radio is the most practical medium for extending education into the remote parts of the Amazon basin; ITV live broadcasting is practicable only in Manaus. Film or video tape, distributed by boat can probably be used in the future to bring the ITV lessons produced in Manaus to the remote towns in the interior.

We have encountered many Brazilians in the south who criticized the efforts of Manaus to operate an ETV station. The only real arguments that were given against it were; (1) Ford Foundation people had questioned the need for an ETV station in Manaus. (2) Manaus is too small for educational television. (3) TV would be limited to Manaus, live transmission into the interior of the state would be too costly.

It appears to us that the first two of these "arguments" seem to be based on the "cultural" rather than the instructional component of the station, which has of course been its major activity to date. The criterion for an instructional service is the size of the instructional need, not the size of the total population. In any case Manaus is over 300 thousand, almost 20% larger than São Luiz, in which the most effective instructional TV in Brazil is functioning well.

Live broadcasting of television into the interior of Amazonas is not practicable. However, other media, such as radio, can be used much more extensively than they are. Recorded media such as film or video tape would be equally appropriate didactically as live television and might be practicable. In any case studies should be made to determine which media or combinations of media are practicable in this remote area. It is not impossible that the same people who plan and produce materials in the television medium can, with proper training, produce materials in other media equally well. Thus the ETV station could become a local multimedia production centre.

The station is too poor at present to afford a staff of people whose only responsibility is planning. A study such as that suggested above could only be done by outside experts, either from a national ETV centre or co-ordinating agency, or from abroad.

One of the greatest needs at Manaus is for a clear statement of station objectives on which to base future planning. To a large extent an educational TV organization without the definition of objectives is like a ship without a rudder. This is up to the education department of the state of Amazonas, and is evidently long overdue.

The facilities problem is acute. While the studio is probably large enough for most purposes in the near future, lighting is very inadequate and scenery leaves much to be desired. One of two video tape machines is out of operation

because its recording head had to be shipped back to Japan for rebuilding and is presently lost somewhere between Rio and Tokyo. The telecine system is a provisional combination of amateur film projectors and an industrial VIDICON camera, and only one of the projectors is in operating condition. Camera tubes are in very short supply and are being used far beyond their standard lifetime. There are only ten video tapes in the possession of the station. They must all be used for delayed broadcast purposes, so there is no possibility of recording and storing locally produced programmes. Finally the transmitter requires replacement parts which have long been on order; it is limping along on halfpower and on one of the evenings that we were there, it weakened repeatedly and finally failed altogether. Conditions like this in other countries usually result in a large number of phone calls to the station - we were not aware of any that evening at Manaus. Perhaps the public is used to this happening, perhaps all TV viewers were watching one of the two commercial TV stations at the time. It is hard to imagine this ETV station taking over a central rôle in any instructional system when operating conditions are so precarious. The manager expressed this as one of the reasons he is not too eager to launch immediately into an extensive television Madureza programme, or an alphabetization series, or basic instruction in the schools. "What if we get started", he says "train orientadores and organize viewing groups and after a few weeks the transmitter goes out entirely. Then what do we tell the people?"

The personnel problem in Manaus is unique and many-faceted. It has been possible to train some very good producers from local people, but the supply of candidates is low. It is hard to find people with the necessary general educational background. A problem with personnel in Manaus, in any organization business or professional, is that people do not take their work responsibilities too seriously and absenteeism is very high. This situation is intolerable in television of course, where activities must be tightly scheduled, production is team work, and teams already contain the basic minimum of people. It is probably unrealistic to expect that educated people from other parts of Brazil will want to go to Manaus to work, and it may also be very likely that local people who become educated and trained in ETV locally will tend to leave Manaus for other parts of the country where they can make more money.

Jack Soifer is trying a different way of calculating staff pay as a means of motivation. Instead of paying by the month in the conventional fashion, he is trying a system where pay is given according to the number of productions completed. Staff is divided into working teams for this purpose and group pressure keeps everyone on the job. He reports that in the same time that conventionally operating production teams complete four productions, the experimental group that is being paid by "piece work" completed fourteen. It is not known whether cameramen are included in production teams, but this is doubtful.

In conclusion it should be noted that Manaus, in our estimation is a particularly important subject for study and experiment because it represents (1) a state with an extended and remote rural area and (2) a state with very limited resources. If as we are saying in this report, ITV is viable only if it is an integral part of an instructional system, and the primary instructional systems in Brazil are under state control, it seems that there will probably be many other small and poor states that will seek to incorporate television into their instructional system. Manaus, and also of course São Luiz, will constitute models for these other states to follow.

9. Fundação Carlos Chagas - São Paulo

Date of visit: 24 April 1972
Talks with: Prof. Carmen L.M. Barroso
Prof. Alice

This visit took place in connexion with the elaboration of the system of tests to be applied as a selection instrument for prospective trainees. This subject is discussed along our report.

Fundação Carlos Chagas is a non-profit educational, social and psychological research institution. Its experience includes different areas, including selection of candidates for training, evaluation of ETV output (TV-Cultura Madureza Course) etc.

During the talks, a possibility was brought up to have the foundation cooperate in training of evaluation personnel, as well as in the selection processes for trainers in other areas.

We were strongly impressed by the seriousness and professional integrity of the staff at this institution and would recommend to consider it as a prospective partner in training programmes.

10. Problems of Method and Procedure in the Brazilian Reality

In the process of investigating the Brazilian needs for ITV training, some problems of operation have come to our attention which need to be solved before additional training can be expected to achieve its objectives. The importance of identifying these problems and separating them from the need for training is recognized in the model. John Tiffin once commented, after observing an ITV director trying to rehearse a programme and doing very badly at it, "This fellow doesn't need training, he deserves a medal for being able to do anything at all".

Because of the close association of these operational problems with the identification of needs for training, it seems valuable to present a short discussion of some typical examples.

Fully as important as obtaining or training capable personnel, is establishing working procedures that allow people to do their best work rather than confining, regulating, and frustrating them. There are two examples of this that can be described; both of these have been encountered in Brazil, and both have caused serious problems wherever they have occurred in television stations here and abroad. The first is the procedure of obtaining materials and services within an organization; the second is the procedure of operation of the studio team during facilities rehearsal and recording or transmission of a programme.

It often occurs that an ITV station is established as an integral part of some larger organization, such as a state educational system for example. In many ways this is desirable. Such organizations generally have well established and functioning departments for purchasing materials, obtaining outside services, cost accounting and the like, which it is possible for the ITV station to utilize, and save having to establish its own. When it is realized that the procurement needs of TV production, in respect to time, are different from those of the rest of the organization, purchasing procedures can be revised to fit TV needs, and

there is rarely any problem. When TV production is expected to fit into an existing mould, however, serious problems result which can greatly reduce the efficiency and the effectiveness of the television output and put an unnecessary drain on the energies of the production personnel. Often producers are reduced to spending the major portion of their time "fighting the system" so to speak, and only the time and energy that is left over can be devoted to actually producing programmes. This is an artificial and unnecessary constraint, very easy to slip into, and very dangerous to the success of television production.

Specifically, the usual bureaucratic procedures require expenditures to be checked and approved at several levels, and consequent complex paper work, with a total time requirement from initial request to delivery of materials measurable in weeks. In television production, particularly at the beginning of a station's activities, when new programmes are constantly being tested out and revised, procurement requirements are measured in days.

Means must be found to streamline the usual procedures, even if this involves some legal changes at the federal level. This is important for any television production, because of the extremely rapid pace of production in this field, but it is especially important for instructional television because of the need for feedback and of rapid response to feedback. Programming must be constantly in an evolving state, and what is learned from the use of one programme must be incorporated into the next if the service is to improve.

Another example is the procedure that is used in rehearsing and recording or transmitting the studio programme. In the history of television there have been many systems used; it is probably no exaggeration to say that every possible relationship between producer and director, director and technical director, director and cameramen has been tried somewhere. It probably could also be said that at some time and place, for some particular kind of television programming, each of the various possibilities has proved workable.

However, instructional television is a form that is highly specialized and not every system of production and direction is suitable for instructional purposes. In Brazil a system is in use in which the producer of the programme, or the director is prevented from working directly with the cameramen. The technical director, who operates the vision mixing console (switching system) is provided with the only intercommunication between controlroom and studio and all directions to cameramen must be relayed through him.

This is the so-called "Technical Director (TD) System" which was initiated by NBC in New York when American television began in 1939, and was crystalized into union contracts. It was soon found that for the great majority of television programmes, this system was a great hindrance to efficient production, but it was literally decades before anything could be done about it. There was once an NBC producer's and director's strike protesting it. On another occasion the company decreed a change in favour of the system then used by CBS, but the engineers union (which included cameramen and technical directors) called a strike against the change, paralysed operations and forced the company to go back to the TD system. During the period while NBC was attempting to eliminate the system, many television centres were being established all over the world and their representatives visited NBC in a steady stream to see how TV production was done.

Of course no NBC host wanted to admit that the method being used was known to be impractical but that NBC couldn't do anything about it, so the system was perpetuated abroad. Eventually NBC came to a compromise with the union. The director was allowed to talk to cameramen on "unrehearsed shows" (programmes requiring a 1.1/2-to-1 rehearsal-to-programme ratio, or less) but the TD system was retained on complex programmes. A further compromise consisted of the use of an open microphone in the control room for communication to the cameramen. Thus they could hear the director as well as the TD and the curse of the system was removed.

The TD system makes of the TD, in all effects, a director. In instructional TV where it is very critical for didactic purposes to have the right shot on the air at the right time, the director must have everything very carefully planned out in advance, and must control the cameramen to see that this plan is realized. If he must do this through a second director, who is not familiar with the programme in advance, extended rehearsal time is a necessity. NBC programmes using the TD system generally allow a 10 or 12 to 1 rehearsal-programme ratio. If this time is not possible, the TD does not have time to learn the plan that was worked out by the director, and must operate on his own, in effect becoming the director. But he is a director who is untrained (TD's have not been required to be education-oriented) and unprepared. The production centres at São Luiz and Manaus have succeeded in abandoning the TD system but it persists in some of the other production centres and there is the danger that new stations may try to use it.

A similar problem sometimes occurs in Brazil even where the TD system is not used and directors may talk directly to the cameramen. This occurs when commercial directors are used to direct the programmes. Such a director often makes his first contact with a programme when he arrives at the studio to direct it. This is as bad or worse than the TD system. Having no idea at all of the didactic purposes to be achieved by the programme he is directing, he uses the same entertainment criteria he has learned in commercial television, trying his best to make some kind of a "show" out of the instructional programme. If this showmanship consisted of something better than surface techniques, fancy wipes, meaningless superimposures and the like, it might have some justification. But a lot of the commercial director's technique is destructive to the instructional purpose. In an entertainment show, for instance, once you have shown what a man has written on the blackboard, and he is through writing, but continues to talk, it would be very boring to require the audience to continue looking at the board. The good commercial director puts the camera on the action, in this case the man who is speaking. The ITV director, on the other hand, is aware of the fact that the presenter is still talking about what he has written, even if he is not pointing to it, and he is also aware of what is or will be going on in the classroom when the programme is received. He visualizes a room full of students at desks, each attempting to record in his notes what the presenter has written and he knows that the blackboard must remain on the screen for a minimum period of time if the students are not to be frustrated.

The danger in any organization is that established methods of operation tend to be continued for their own sake, because "this is the way we do things", and any questioning of whether the system is serving its specified ends becomes forgotten. The ideal climate for the most efficient operation would seem to be

a laissez-faire system in which the cameramen and technical directors are familiar with a wide range of systems, and each producer, or director could use whichever system best suited his individual way of working, or the character of the individual TV production involved.

If a director is doing a programme which is based on music, for example, and needs to switch between cameras precisely on the musical beat, he may easily find that this can be satisfactorily done only if he operates the switching system himself, instead of calling shots to a technical director.

III. THE BRAZILIAN ITV TRAINING PILOT MODEL

This portion of the report contains the Brazilian ITV training model and supporting documents including research done by John Tiffin as a consultant to the Brazilian Government since 1970. This is the bulk of the work done under the Unesco mission and was produced jointly by Rudy Bretz, Dov Shinar and John Tiffin.

1. Instructional Television and the Instructional System: A Perspective

Our initial response to planning training for personnel for ITV was determined by the existing framework of training which in a traditional manner concentrates on the production aspects of ITV. As we studied the "Brazilian reality", however, we realized that training needs for production personnel is only the tip of the iceberg. It is the visible part of the problem only. As we have noted, ITV is a system which includes planning, reception and utilization as well as programme production. If the understood objectives of the Brazilian Government to use ITV to resolve many educational problems are to be realized, then the principal training needs are in the hidden parts of the problem. Target audiences for ITV within existing transmission areas amount to many millions. The new series FCBTVE are producing has a stated target audience of 20,000,000. Yet the total number of people presently being instructed in organized centres of TV reception in Brazil is less than 20,000.

The dimensions of what needs to be done in organizing reception groups and supervising utilization are far greater than the improvement of programming. In the short time at our disposal it is impossible to go into this area in any great detail. However we recognize its paramount importance and strongly urge that utilization, reception and evaluation be given a high priority. This could well be the subject of a future Unesco study.

Educational television stations generally produce and/or transmit two different kinds of programmes, those that are cultural and/or informative and those that are instructional in nature. The difference is in purpose, and mode of use by the intended audience, and this determines the criteria on which a programme, or indeed the whole station itself, is evaluated and justified.

A cultural programme, broadcast for general interest purposes to a general audience, is considered by the broadcaster as an end in itself. If it is a good programme in terms of its human interest, pace, and production qualities, it is amply justified, provided of course, that a reasonably large number of sets were tuned in during its broadcast. (Some stations in the world have operated under the policy that it doesn't matter how many viewers (or how few) a programme may have, the mere availability of the programme is the important thing). On the other hand, because an instructional programme is part of a system of instruction, it can be evaluated, and justified, only according to the degree to which it contributes to the success of that larger system. It is never an end in itself. The same is true of the entire instructional system, at least in respect to its instructional activities.

It is frequently the case that the instructional television station will have more rôles to play in the instructional system that it serves, than merely the production and dissemination of programmes. In the case of the Fundaçao Maranhense in São Luiz, for example, the instructional television station and its personnel provide nearly all components of the instructional system. They

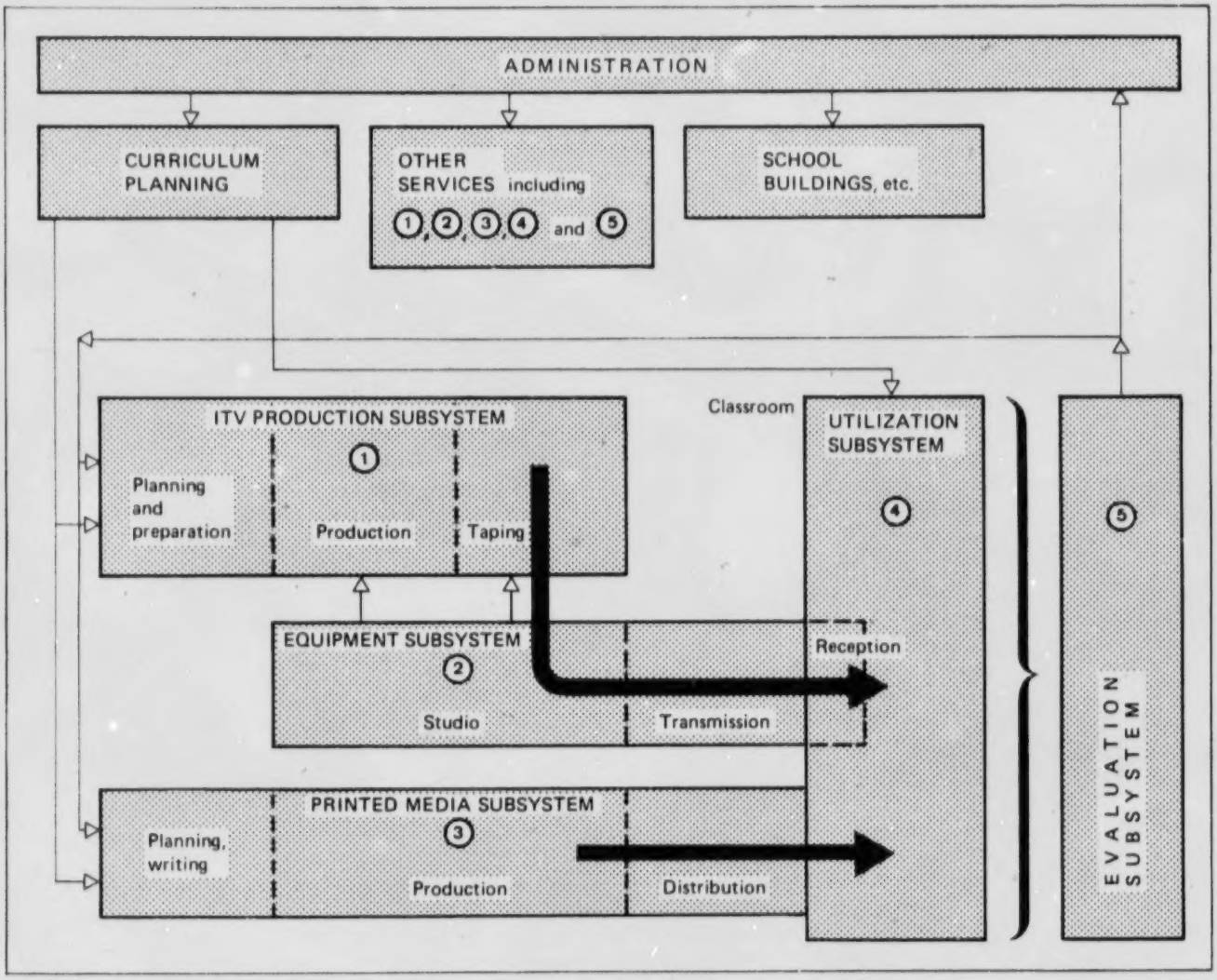
are responsible for the reception of programmes, for the planning, production and distribution of supplementary materials in the print medium, for the classroom utilization of all media, for the planning and implementation of all other classroom activities, and for the collecting of data on the effectiveness of instruction for evaluative purposes.

It is not necessary that all these functions be performed by the instructional television station, but they must be all performed by someone, and they must all be co-ordinated very closely, since they must all function as part of a single organism. When the system does not exist or cannot readily be brought into existence that can do all these things and co-ordinate between them, then the ITV station must undertake them or there will be little purpose to be served in broadcasting instructional programmes, since they will not be used. This was done in Maranhão, as described above, and may well need to be done elsewhere as other states begin to initiate instructional television activities.

Figure 1 represents those components or sub-systems of a typical instructional system, all of these may in case of necessity, be provided by the instructional television station. Other sub-systems such as classroom buildings, accounting and other administrative services, public relations etc. are probably best provided by the overall educational system itself, which is generally a state department of education. Contributing to the production and dissemination of ITV programmes is an equipment sub-system, the objective of which is to serve the production and the utilization sub-systems. It could be thought of as a sub-system of each of these, or as shown in the figure, as a sub-system of the entire instructional TV system. In any case, its objectives are to make production or utilization possible, and beyond that, to make it maximally convenient, efficient and effective. Where technical departments in TV stations have too much power, engineers have frequently seen this junction as existing for its own sake, with its only objective being the recording and transmission of programmes of good technical quality. This concept has frequently placed such difficulties in the path of production that its objectives could not be fully achieved, and the effectiveness of the entire station was seriously reduced.

Figure 1

A TYPICAL INSTRUCTIONAL SYSTEM



2. A Summary of the Model

The flow chart on which this discussion is based represents a model that may be used as an aid both in determining specific training requirements for an instructional television system, and in designing the instruction required.

It begins by posing several questions concerning the instructional need that the ITV system is intended to fulfil, and its relationship to the larger instructional system that it will serve. It also reminds the user that a meaningful analysis of training needs cannot be made unless the instructional objectives of the system are clearly defined.

If the ITV station or system is already in operation, it is asked if a need for training is being felt because the system instructional objectives are not being achieved, either because a higher level of efficiency is desired, or because a higher level of artistry in production is desired. If the last of these is the motivating factor, the user is directed to seek a different kind of training than this model will help him to design.

There is nothing incompatible between instructional and artistic production. It must be understood, however that ITV production must first be instructionally sound and that training with this end in view is basic. An advanced course in artistic production could then improve production quality by adding what are often called "production values". Such values probably add to the instructional effectiveness of ITV programming by achieving additional (and generally unspecified) objectives in the affective domain. This is the realm of attitude and emotion. Little if any hard scientific evidence exists to support this view, but it is held by many, including the designers of this model. There is no doubt, however, that improving the artistic effectiveness and the production values of ITV programming increases its apparent value in the eyes of those who are not the learners to whom the programs are directed. This will include individuals and committees who officially evaluate the programme output of a station, using subjective means, as well as those whose decision it is to continue, increase, decrease or terminate the financial support of the ITV organization.

The model then continues with a series of exercises designed to determine whether training is actually required, or whether the problem or problems which seem to call for training are actually of some other nature and would have to be solved in any case if training could be expected to make a difference. As needs for training are established, the functions to be taught are listed and later summarized as a set of training objectives.

The next step is to quantify the resource requirements with the help of the Tiffin Matrix. The subjects to be taught are determined (each function may require the teaching of a different set of subjects), the instructional hours for each subject, and such resource requirements as staff facilities, materials and the like.

A detailed specification of learning objectives is then possible. These are formulated in close association with the design of the training evaluation process, so that learning objectives may be specified in terms of the measurable behaviours or actions the student is expected to perform.

The Tiffin Matrix also makes it possible to combine those functions requiring training into homogeneous course groups. A course may be given in concentrated form over a short period of time, or intermittently, over a longer period. Courses may be general in nature or specific, and they may be given at the local station, at a regional centre, at a national centre, or abroad. Not all combinations of these variables are logical; there are some seven combinations that are, and can be considered course types. In many cases two or more of these types may be equally appropriate alternatives, and by means of a set of estimating relationships, each such alternative may be costed.

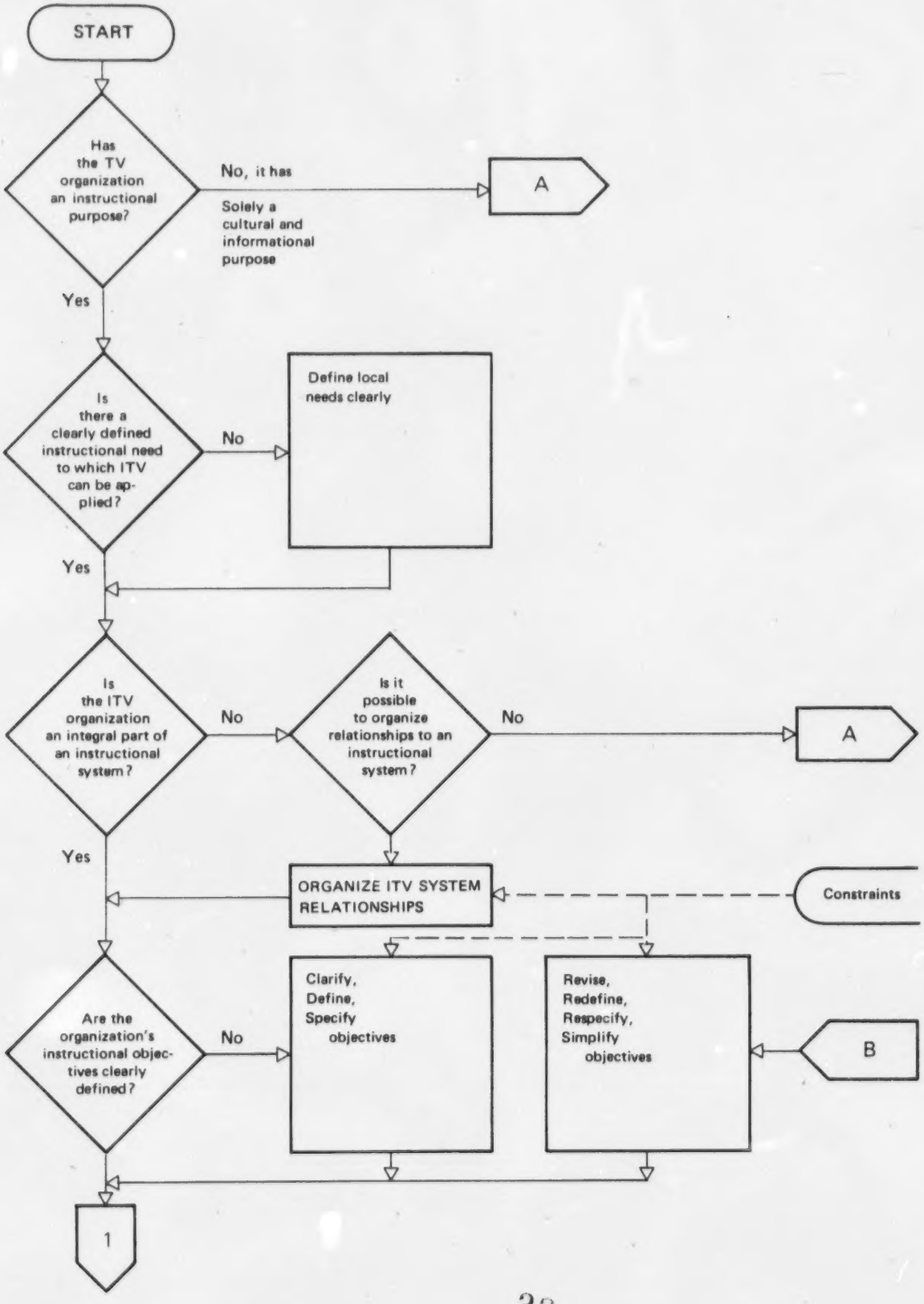
At this point top management must enter the process and determine, first, if any of the alternatives are acceptable, and if so, which is preferred. If none is acceptable, the process must loop back to the very beginning where management must reconsider the instructional objectives of the station, revise, simplify, reduce certain requirements, or whatever is necessary so that a second run through the model produces some alternative strategy that is acceptable.

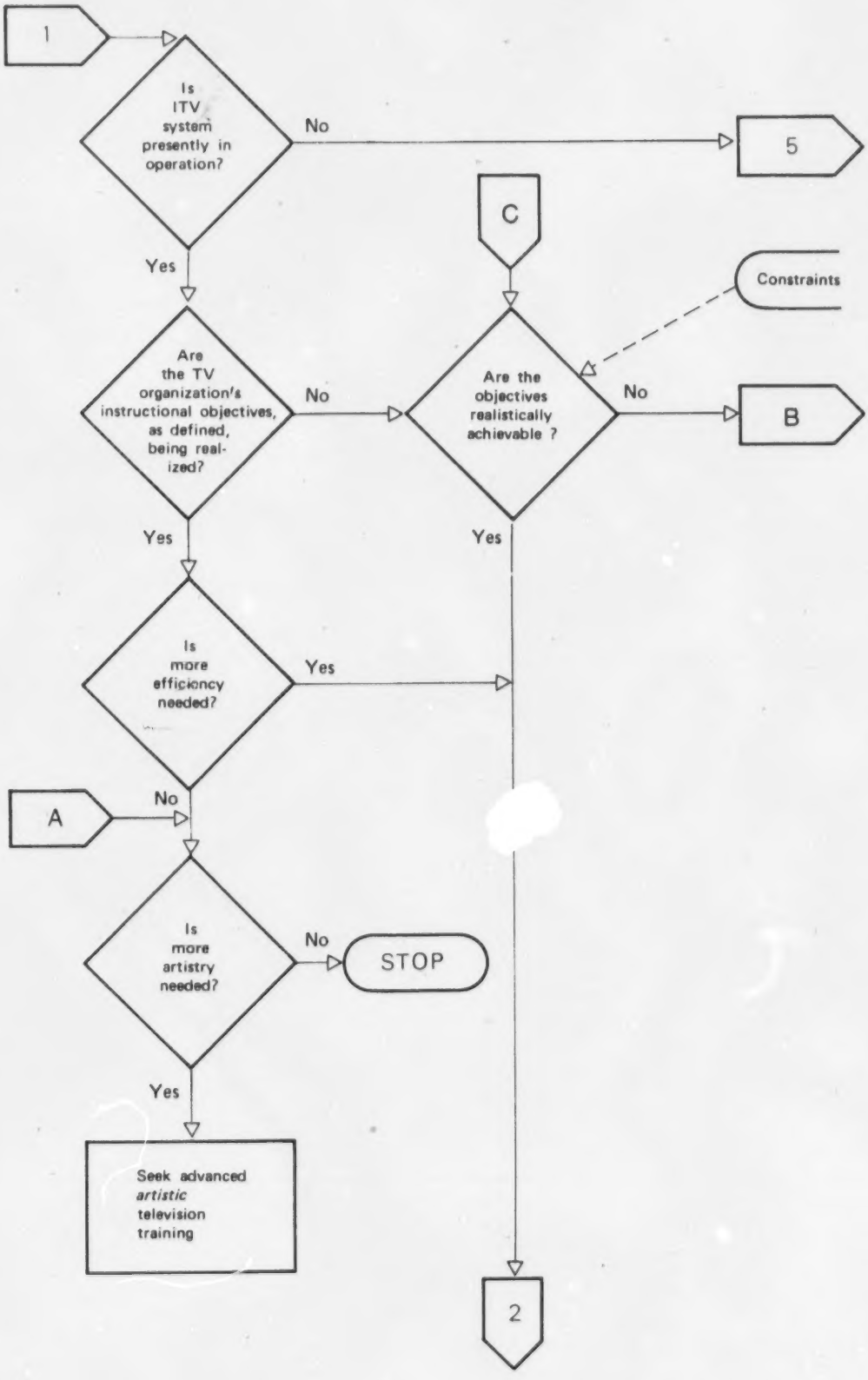
When this decision has been made, the course (or courses) may then be implemented. Students are selected according to the accompanying table of requisite qualifications. Time and schedule are cleared for facilities, staff and students; contingencies are allowed to provide for the realities of operation in new organizations. A course budget is prepared, as well as an hourly schedule (in the case of a concentrated course) and the required instructional materials are made ready.

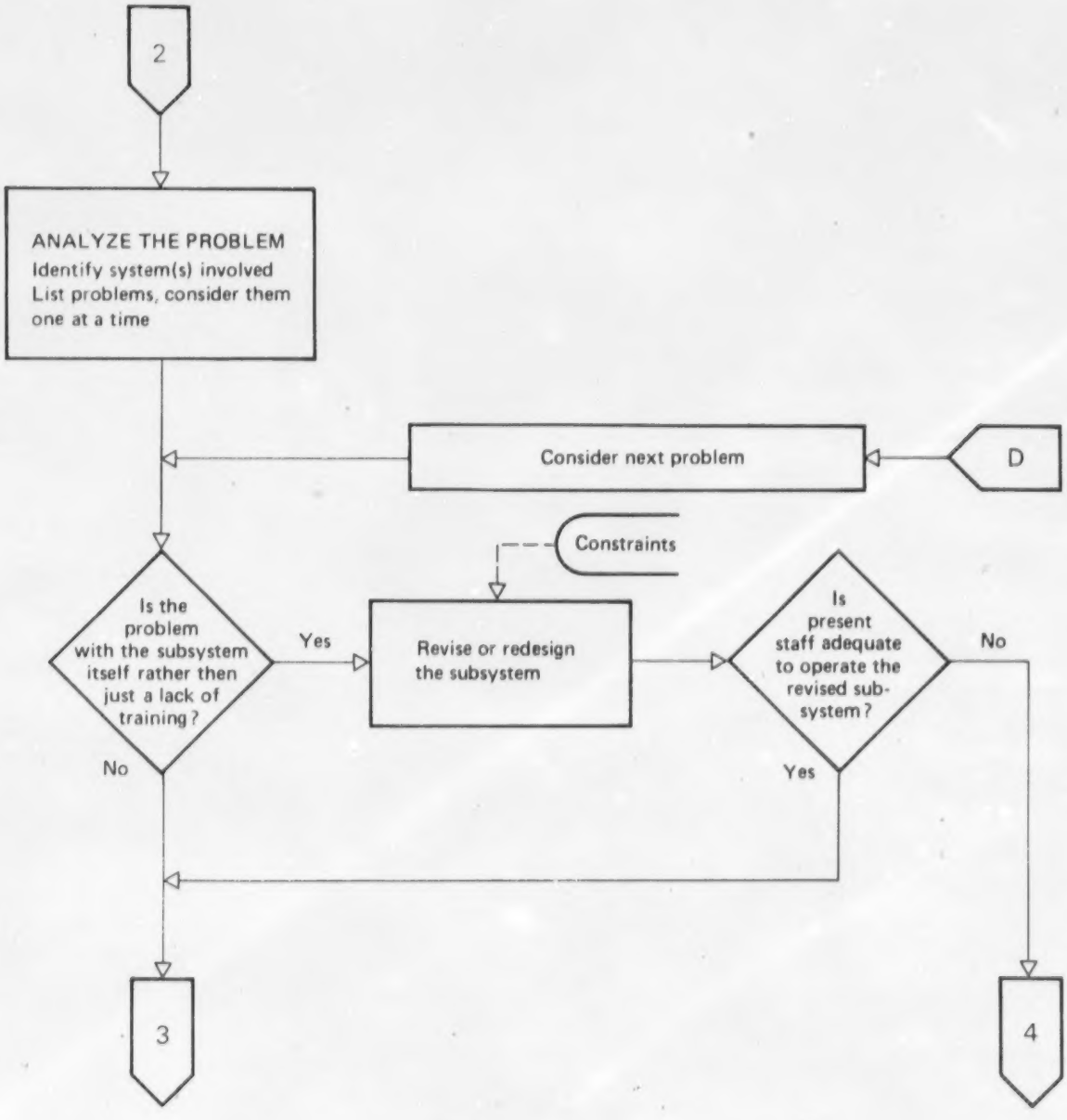
When the students are assembled a pre-test is administrated, against which the post test will be compared to assess achievement. Then follows the course itself, and the post test immediately afterward. If the instructional objectives of the course have not been realized, a recycling process leads to the design of the necessary remedial instruction and the readministration of instruction to those who have shown the need for it, and the part-test is repeated. After a certain time lapse, the model suggests that another evaluation is necessary to determine whether the instruction was successful in being transferred to the daily work of the students who received it.

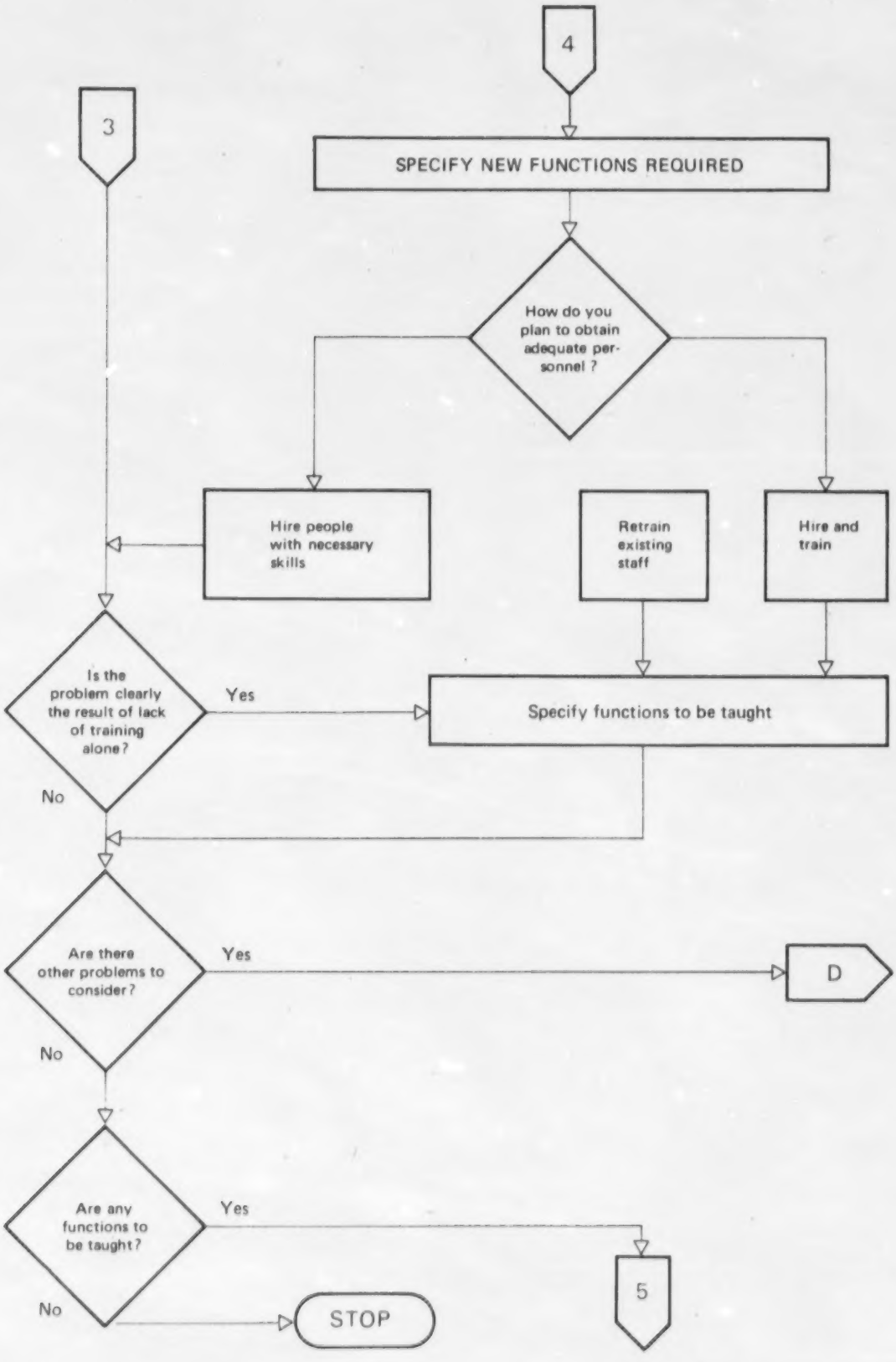
This is the point of which the question is again asked: "are the station's instructional objectives being achieved? If the result of this evaluation is negative another <u>recycling</u> is indicated in the model, bringing the analyst back to the beginning for another look at the objectives and another go at analysing the problem. The logic here is that if the course had indeed achieved <u>its</u> objectives and still there was no effect on achieving the <u>station's</u> objectives, either the training given was not really required, or there is still some other problem which must be solved before training can have any effect.

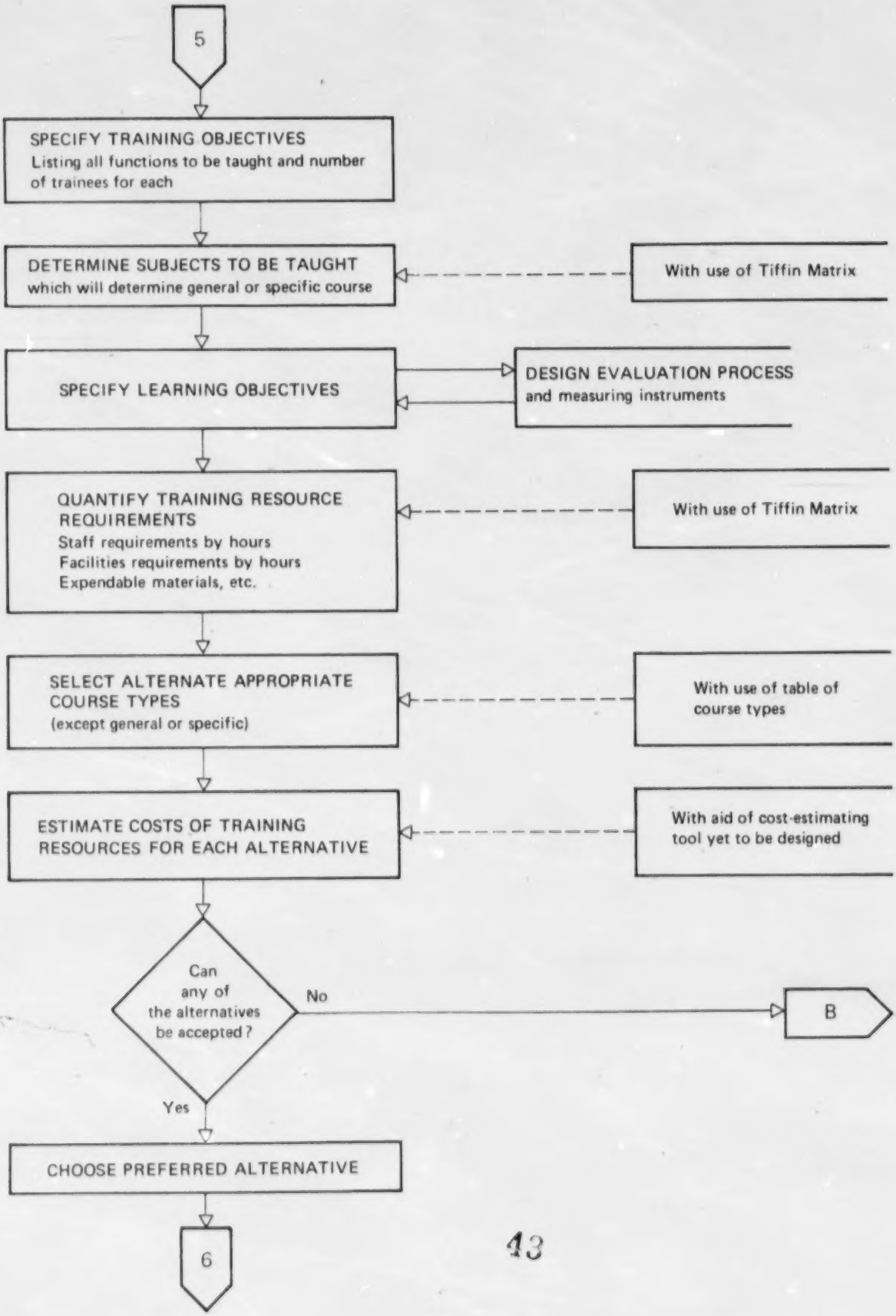
It is interesting to note, in considering this model, with its 30 actions and 18 decision points, that frequently in the past only one action, that of implementing a course, has been clearly recognized, and certain other actions such as the selection of students have been based on subjective opinion rather than specific criteria, with only one decision, whether or not to give the course, recognized as entirely necessary.

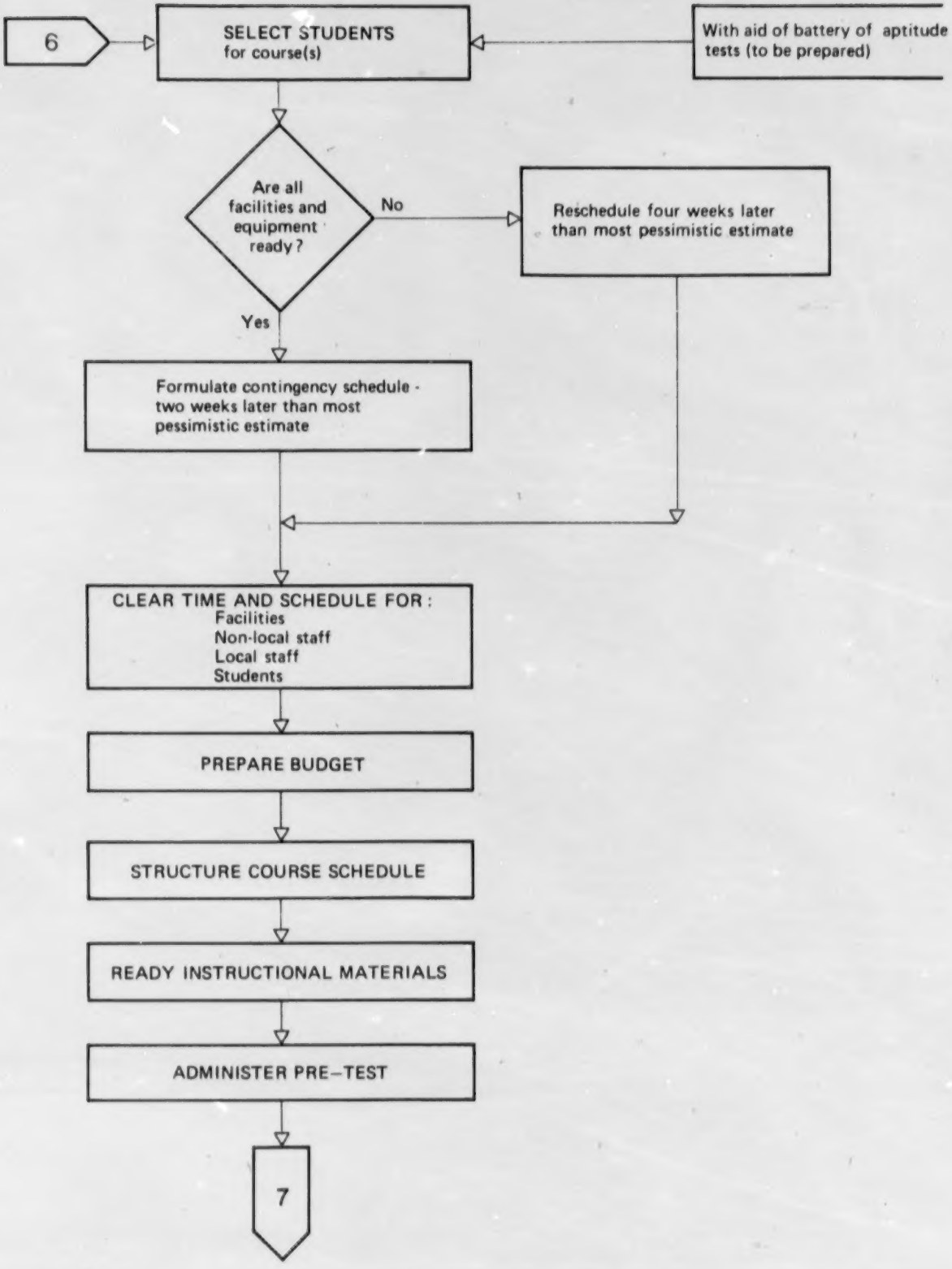

START
Has the TV organization an instructional purpose?
No, it has
Solely a cultural and informational purpose
A
Yes
Is there a clearly defined instructional need to which ITV can be applied?
No
Define local needs clearly
Yes
Is the ITV organization an integral part of an instructional system?
No
Is it possible to organize relationships to an instructional system?
No
A
Yes
ORGANIZE ITV SYSTEM RELATIONSHIPS
Constraints
Are the organization's instructional objectives clearly defined?
No
Clarify, Define, Specify objectives
Revise, Redefine, Respecify, Simplify objectives
B
1

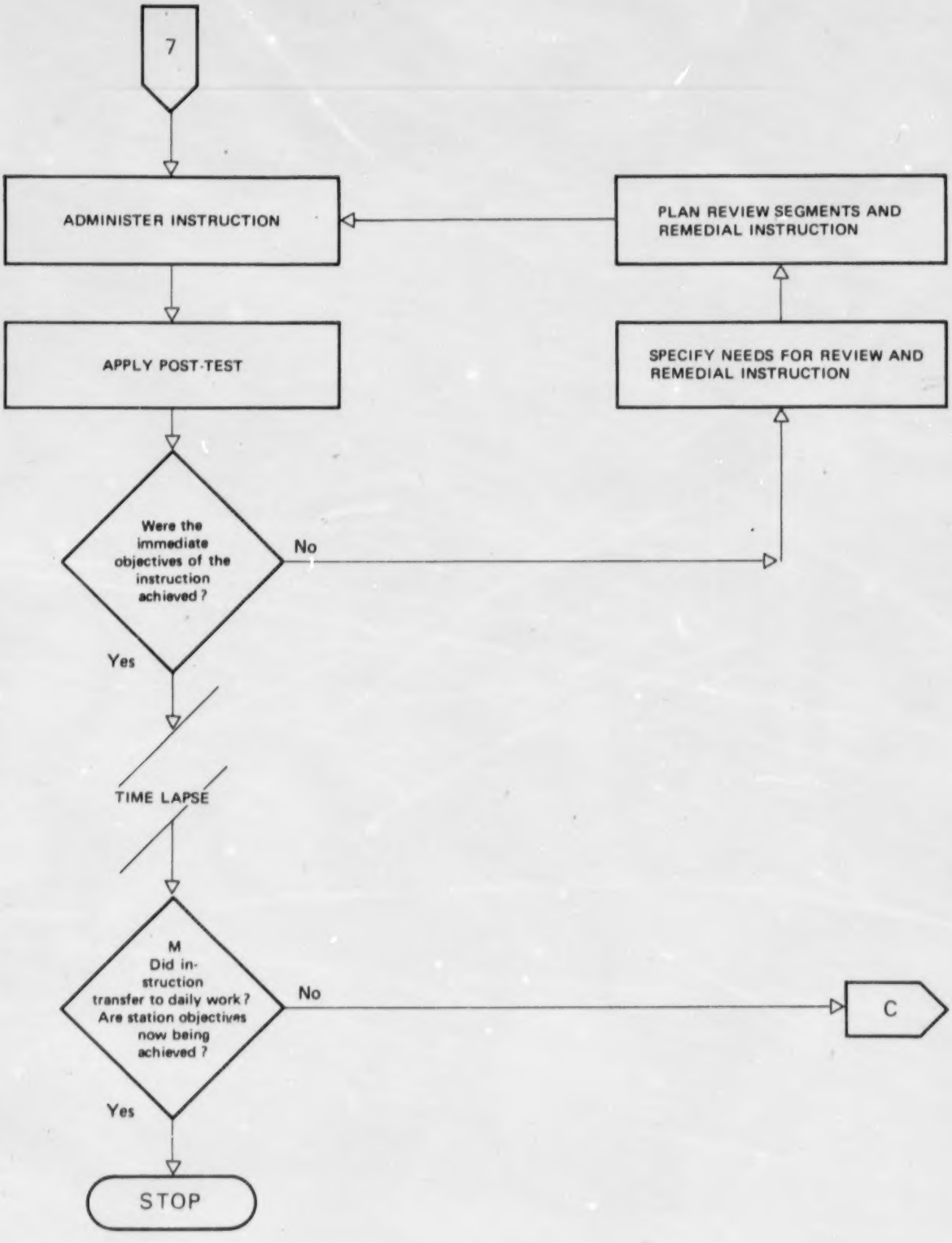

1
Is ITV system presently in operation?
No
5
C
Constraints
Yes
Are the TV organization's instructional objectives, as defined, being realized?
No
Are the objectives realistically achievable ?
No
B
Yes
Yes
Is more efficiency needed?
Yes
A
No
Is more artistry needed?
No
STOP
Yes
Seek advanced artistic television training
2


2
ANALYZE THE PROBLEM
Identify system(s) involved
List problems, consider them one at a time
Consider next problem
D
Constraints
Is the problem with the subsystem itself rather then just a lack of training?
Yes
Revise or redesign the subsystem
Is present staff adequate to operate the revised sub-system?
No
No
Yes
3
4


4
3
SPECIFY NEW FUNCTIONS REQUIRED
How do you plan to obtain adequate personnel ?
Hire people with necessary skills
Retrain existing staff
Hire and train
Is the problem clearly the result of lack of training alone?
Yes
No
Specify functions to be taught
Are there other problems to consider?
Yes
D
No
Are any functions to be taught?
Yes
No
STOP
5


5
SPECIFY TRAINING OBJECTIVES
Listing all functions to be taught and number of trainees for each
DETERMINE SUBJECTS TO BE TAUGHT
which will determine general or specific course
With use of Tiffin Matrix
SPECIFY LEARNING OBJECTIVES
DESIGN EVALUATION PROCESS
and measuring instruments
QUANTIFY TRAINING RESOURCE REQUIREMENTS
Staff requirements by hours
Facilities requirements by hours
Expendable materials, etc.
With use of Tiffin Matrix
SELECT ALTERNATE APPROPRIATE COURSE TYPES
(except general or specific)
With use of table of course types
ESTIMATE COSTS OF TRAINING RESOURCES FOR EACH ALTERNATIVE
With aid of cost-estimating tool yet to be designed
Can any of the alternatives be accepted?
No
B
Yes
CHOOSE PREFERRED ALTERNATIVE
6


6
SELECT STUDENTS for course(s)
With aid of battery of aptitude tests (to be prepared)
Are all facilities and equipment ready?
No
Reschedule four weeks later than most pessimistic estimate
Yes
Formulate contingency schedule - two weeks later than most pessimistic estimate
CLEAR TIME AND SCHEDULE FOR :
Facilities
Non-local staff
Local staff
Students
PREPARE BUDGET
STRUCTURE COURSE SCHEDULE
READY INSTRUCTIONAL MATERIALS
ADMINISTER PRE–TEST
7


7
ADMINISTER INSTRUCTION
PLAN REVIEW SEGMENTS AND REMEDIAL INSTRUCTION
APPLY POST-TEST
SPECIFY NEEDS FOR REVIEW AND REMEDIAL INSTRUCTION
Were the immediate objectives of the instruction achieved?
No
Yes
TIME LAPSE
M
Did instruction transfer to daily work? Are station objectives now being achieved?
No
C
Yes
STOP

3. Flow chart of the model

Conventions and symbols used

There is no time scale in this flow chart. It merely relates one function to another indicating each action or decision in relation to others which it must logically precede or follow. Sometimes results require that a set of functions must be performed two or more times, and in such cases a loop backwards is indicated. Actions are identified by being surrounded by oblong boxes; Decision points where two or more options are possible are identified by being enclosed in a diamond shape. Arrows indicate the order of events. The following symbol ⟶ [1] means that the arrow is continued on a later (or earlier) page where this symbol [1] ⟶ is found. Start and stop directions are enclosed in the sausage shape ( ). Decisions or actions that can only be made by or in close association with station management are indicated by the Letter M at the top of the symbol.

The following pages of instructions follow fairly closely the flow of the chart, although sometimes more than one action or decision may be described or discussed in a single paragraph.

4. Instructions for use of the model

The user of the model

The analysis required in this model can only be performed by people who are expert in instructional television and instructional systems in general. In addition they must be thoroughly familiar with the Brazilian reality. If a foreign expert has been imported from abroad for the job, he should be given at least a month in which to visit educational television stations and familiarize himself with the current situation and the particular problems of the country.

To analyse the problems of a station may require a team of experts to spend at least three weeks observing in control room and studio during production, in master control and video-tape and projection areas during transmission, and in schoolroom or teleposto during utilization both before, during and after broadcasts. Just as a physician must first listen to a patient's complaints, then conduct a full examination covering all possible systems of the body that might be at fault, so must the ITV experts look at everything.

Has the TV organization an instructional purpose?

"TV organization" in this question may be a broadcasting station, or a closed-circuit system that uses a wire system to disseminate programmes, or a production centre that has no means of its own to disseminate programmes directly, but records on film or video-tape and distributes by mail or other transportation means to broadcast stations or closed-circuit systems. A single TV organization may perform the functions of two or of all three of these possibilities. A TV organization may not have a production function at all simply using programmes that are produced by other organizations (e.g. the Madureza series produced in São Paulo and used in Maranhão).

"Instructional purpose" is intended to mean the production (and/or distribution) of programmes which are an integral part of an instructional system. This does not include programmes which are broadcast, for example, for the general public in which there is no organized viewing, and no other elements of an instructional system. Such programmes, as for example "How to make simple electrical repairs in the home" may indeed be "educational" in that they may teach those people who happen to tune in something about the subject. They are not considered "instructional" however, in the sense in which the term is used in this model. Instead they are considered "informational" or "cultural" in nature. If the TV organization is solely involved in informational and cultural programmes as defined above, this model is not applicable. The user is directed to point A which appears on the second page and leads to a question which asks if more artistry is needed. If this is the requirement, a more advanced type of training in artistic television production will be required.

If the user of the model is concerned with an organization that has some instructional purpose, whether or not it also has informational and cultural purposes as well, the model will be applicable. From this point on, in recognition of the fact that the model is only concerned with analysing the instructional component, the organization is referred to as the "ITV" rather than the "TV" organization.

Is there a clearly-defined instructional need to which ITV can be applied?

The purpose of this question is to stimulate some critical thinking about the instructional purpose of the organization. This is a particularly important question for an ETV station not yet in operation to ask. A station should not, for example, prepare a series of programmes intended to teach a given foreign language, without first determining the extent of the need for this instruction. If instructional needs are not clearly defined, whether these are local, regional or national, in terms of the instructional system or systems to be served, numbers of students and the like, this should be done before proceeding further.

Is the ITV organization an integral part of an instructional system?

The major components of an instructional system have been described earlier in this report. This question asks if the ITV organization is or is planned to be incorporated into such a system. If this is not the case, relationships to other elements of some existing instructional system should be organized, or failing this, the ITV organization should take over and provide the entire instructional system itself, as has been done by the ITV organization in Maranhão.

If it is not possible or not desired to either integrate the ITV organization into an instructional system, or to create an entire instructional system around the ITV organization, the organization cannot then be said to have an instructional purpose. If it produces and/or transmits programmes which it calls educational these will be only of a cultural or informational nature according to this analysis. The ITV training model will not apply. The user is directed to point A again on the second page, after which the only question asked is whether greater artistry is desired. If this is the case, advanced artistic training should be sought. If basic training is first required, this can be general in nature and should not be specific to instruction.

Are the organization's instructional objectives clearly defined?

At this point in the model it should be well established that the ITV organization has the purpose of serving a real and existing instructional need, as part of some larger instructional organization. On the basis of this information the ITV organization should have a set of clearly-defined objectives. These should be so specified that their achievement or lack of achievement can be fairly readily observed or measured. Logically they should be formulated by the instructional system which the ITV organization serves, not by the ITV organization itself. If the latter course is taken, the danger exists that the objectives may come to be designed so that ITV will exist primarily for its own sake, not as a contribution to something bigger.

If such a set of objectives does not exist, it is up to the managers of the instructional system that uses the product of the ITV organization, to see that a set is provided. Without clearly-defined objectives against which the ITV organization can be readily evaluated, it will be impossible to know what is required, and thus to analyse training requirements. The model cannot be applied.

Is the ITV organization presently in operation?

This question is meant to separate those organizations that have been operating, and are experiencing certain problems which seem to indicate a training need, from those who are starting at the beginning and except for personnel with prior ITV background, have a need for training in all areas.

In the case of an organization already operating it is possible that the dissatisfaction that has led to a call for training has resulted from the fact that the organization has not succeeded in achieving its stated objectives. On the other hand, the organization may be achieving its objectives, but is, in the opinion of its managers, or its users, operating at lower efficiency than necessary. It may be expending too much, in their opinion, in the way of resources and funds to meet its objectives, and it is hoped that additional training may increase its efficiency.

If it is achieving its objectives, and operating with acceptable efficiency, the dissatisfaction may be with the artistic values of the ITV product. In this case advanced artistic television training would be required, and the model would not apply. If the answer is no to all of these questions there is logically no need for training, and the analysis may stop here.

If the organization is failing to meet its objectives, before concluding that something must be wrong with the organization, the analyst must first examine the objectives and determine if, in his opinion, they are realistically achievable in the light of existing constraints. If they are not, the model loops back to the first page again via letter B, where the task of revising the objectives is then required. Just as with specification of objectives in the first place, revision must be done by, or with, representatives of the instructional system that is using instructional television. If the objectives are considered realistically achievable, however, the analyst is brought to the stage of analysing the problem.

Analyse the problem(s)

On the basis of observation, and the information obtained from consideration of the questions at the beginning of the model, the analyst should be able to list the various problem areas which appear to be in need of improvement. These should be listed, along with the subsystem in which they each belong, and handled one at a time. This is for convenience only; in some cases problems may interact and one problem cannot be addressed without reference to others.

Is the problem with the system itself rather than just a lack of training?

The consideration of this question is one of the major reasons for using a highly-qualified instructional television expert to analyse the problem. What may appear to be a need for training may, in the light of expert observation, turn out to be a problem with the operation, the procedure by which people are trying to work together, rather than with the people themselves. If this is the diagnosis, obviously the subsystem should be revised or redesigned. After this has been done, at least on paper, the question of whether or not the present staff is adequate to operate the revised subsystem must be considered. If it is decided that new functions are required, or functions have been changed sufficiently that

retraining is required, these new functions should be specified. Then the question of how this adequately-trained personnel will be obtained must be considered. The station management must make this decision, and will have two main options, plus various combinations of the two. New people may be hired who already have the necessary skills to perform these functions, the existing staff may be retrained, or some combination of these two may be used. For instance, there may be some new hiring, and some retraining, or new employees may be hired who have some but not all of the required skills, and are given some additional training to bring their abilities up to the required levels.

After management has made these decisions, the functions which are to be taught to people in the training process should be listed. Functions are considered, not people or positions in the model, because people change and a given position will have different functions from one centre to the next, but functions themselves are basic. In some places a given function may be performed by many people, in another smaller place one person only may perform that function and perhaps others as well.

The model then asks if there are yet other problems to consider, and if so, loops the user back to the same consideration again: is the problem caused by personnel or is the subsystem at fault. The user is thus run through this part of the model for as many iterations as necessary until there are no more problems to be considered.

Then the user is asked to take stock of the needs for instruction that he has listed. If he has managed to solve the problems of the station by other means than training, there will be no functions to be taught, and there will be no need to carry the model any further.

Specify training objectives

If there are functions to be taught, these are now listed, and the number of individuals who are to learn each function must also be noted.

Quantify training resource requirements

This stage in the process will be performed with the aid of a tool called the Tiffin matrix,(1) designed by John Tiffin. It is a large table on which the columns represent functions to be taught, and the lines represent subjects. A given column representing a certain function, say cameraman, will contain marks in many lines, indicating all the subjects which a cameraman should learn. The nature of the mark indicates whether this learning should be only to the extent of theoretical knowledge, or whether he must actually be able to perform certain skills connected with the subject.

Additional columns on the matrix indicate, for each subject, how much teaching time needed, both for theory and for practical application. This in turn can be used in calculating the hours that are required of various facilities, such as classrooms, television studios and associated areas, equipment, etc. Finally the

(1) The matrix as well as instructions for its use appear on page 49.

number of hours of instruction, and the number of people to be instructed in each subject can be used to determine the amount of expendable materials that must be provided. At the same time the number of hours of staff personnel time required, and hence the number of staff people required may also be determined. This should be done for teaching staff, specifying whether each person is to be from the local station, a regional centre, a national centre, or is to be from outside the country. It should also be done for non-teaching staff including support people of various kinds, clerical, technical and the like.

If it is possible at this time to determine the specific individuals who are to be trained in each function, they can be evaluated according to background. Then if an individual can demonstrate mastery of certain subjects, it will not be necessary to teach him those subjects. This procedure would be followed later in any case, at the time that students are selected for training. It would have the effect of reducing the overall training requirement. However, if the total training requirement can be reduced at this earlier stage, a more accurate estimate of training costs can be achieved.

Specify learning objectives

Following this, the training must be further defined by specifying the learning objectives. Whereas the training objectives specify each function that is to be taught (directing, camera handling, floor managing, etc.), the learning objectives define the training even further by specifying exactly what is to be learned and to what level of proficiency. This can best be done in terms of the actions that the learner should be able to perform in order to demonstrate his mastery of the function as it has been taught. This has generally been called "the specification of objectives in behavioural terms".

The methods that will be used in measuring the degree of a learner's ability to perform a function must be designed in close association with the specification of learning objectives, in order to avoid specifying an objective when there is no adequate means of assessing its achievement. Very often the means of measurement (or subjective evaluation if exact measurement is not possible) will determine the terms in which a learning objective is specified.

Select alternative appropriate course types

There are several ways in which training can be given. Below is a table summarizing the major alternative overall course types. This is not to say that there may not be others, applicable to special cases. The seven kinds of courses, indicated by the seven columns on the table, are based on three variables. The first variable concerns whether the course is concentrated and continuous, or intermittent. A concentrated course is conventional in this respect; everyone takes the course together for a specified length of time. During that time such a course is generally the exclusive or at least the primary activity of the student. The alternative to this is the intermittent course, which is administered while the student is working on the job. It is far less formalized, and would probably be limited to small groups of students, or even individuals. This is not a strategy that has been used in Brazil but it is proposed here in the hope that it may be possible in situations where a conventional course could not be done. It is conceived that an expert from a regional centre might make regular visits to a

station (or to many stations within his region) observing the work of the people in his "course". After a series of critiques of their work, and perhaps some demonstrations of techniques with which they were not familiar, he might give a theoretical lecture or two and go away again. This could apply, for example, to a course for directors or a course for "orientadores de apprendizagem" in the schools, in which case the demonstrations might be of group dynamics techniques.

The second variable is the subject-matter nature of the course, i.e. whether it is general, and applicable to an entire subsystem of instructional television, such as programme production, or is specific and applies only to a single function. Whereas general courses can best be given at the local station with the local equipment and facilities, specific courses of a concentrated nature may be given at a regional or national centre, even perhaps abroad. Intermittent courses, of any nature, can only be given at the local station where the students are working, since they must continue their jobs.

The third variable is the locale at which the course is given: the local station, a regional centre, a national centre, or an international centre. Each of the seven obvious course types is a different combination of these three variables. More combinations than these can be made of the three variables, 16 in all are theoretically possible, but any others than these seem illogical, unlikely, or clearly unpractical. If more variables than these three are desired, they may readily be added to the table, and of course the number of columns containing workable combinations will then be increased accordingly.

Table of course types

	1	2	3	4	5	6	7
General course	X	X	X				
Specific course				X	X	X	X
Concentrated	X		X	X	X	X	
Intermittent		X					X
At local station	X	X					X
At regional centre			X	X			
At national centre					X		
At international centre						X	

Estimate cost for training resources for each alternative

The quantification of resources has been done with the aid of the Tiffin matrix; with a knowledge of local costs and some estimating relationships it should

be possible to arrive at reasonable estimates of the costs of giving courses of various types. Considerable data already exists on the costs of the concentrated courses that have been given in Brazil in the past. Some of these figures cannot be compared with others because they contain different ingredients; others are known to be in error. It would be very helpful if someone were to make a careful study of this question and develop usable estimating relationships by which various kinds of courses could be costed. Of course the predicting of costs cannot be very accurately done unless specific details are known, such as local availability of facilities, materials, specialized personnel and the like. Thus the more clearly the specific conditions are known under which the course will be given, the more accurate will be any estimate of costs.

Management decision

At this point management must come into the picture and decide whether the costs of any of the proposed alternatives can be met. This may be local station management, if the money for the course is to come from or be administered by this source; it may be a national co-ordinating body such as FRONTEL, if the money is to come from a national source. Again it may be a joint decision. In any case it must be made before the model may be carried farther.

The remainder of the model is concerned with the implementation of the course (or courses) which are specified in the alternative that has been selected.

Select students for course

A procedure for the selection of trained personnel has been developed and is described in a later section entitled "Aptitude tests". This is followed by a matrise relating the various functions to be taught to a list of prerequisite qualities: physical, cultural/educational and psychological/personality. Crosses in the cells of the matrise identify which qualities are prerequisite to the learning of each function. The discussion of aptitude tests outlines work that must be done before a satisfactory procedure for identifying individuals with necessary qualities is available in Brazil.

Are all facilities and equipment ready?

Past experience with new television facilities everywhere is that they inevitably take longer to construct and make ready for use than any of their planning, operating or administrative staff estimates will. Therefore, if the facilities are not ready at the time the analysis is being made - that is, currently operating in all required respects - it is only realistic logic to expect that they will not be ready when scheduled.

Therefore, considering on the average delay time experienced in starting training courses in Brazil where facilities are being installed or constructed, it is suggested that the start of the course be rescheduled four weeks later than the most pessimistic estimate for completion of facilities.

Clear time and schedule for facilities, non-local staff, local staff and students

The items to be scheduled have been listed in the logical order in which they should be considered, but because they must all coincide in order to make a course possible, they are listed here as one action instead of several consecutive actions.

Prepare budget

A cost estimate of the course or courses which are now being implemented was previously prepared at an earlier stage in the model, as one basis for choice of the type of course desired. Since that time, however, conditions may have changed, contingencies added and the particular requirements of scheduling should be taken into account. While the total cost of the course may be fixed, the individual costs of which it is composed will require considerable refinement. This should be done by the person who will act as co-ordinator or general administrator for the course. A budget is really a forecast of expected expenses. It should be a slave to the course, not a master, as long as the total funds allocated for the course are not exceeded. The individual budget items should be flexible; if costs are exceeded in one category, the co-ordinator should be able to use funds from another category, at his discretion, and preferably without concerning the director of the course.

Structure course schedule

The content of the course will have been determined through the use of the Tiffin matrix, with subject-matter and learning objectives in logical didactic sequence. This will then have to be translated into terms of specific day and hour facility requirements and the like.

In the event that more than one course is being carried on concurrently, such as a course for cameramen and a course for directors, and these are intended to interrelate in joint practical sessions at various intervals, such co-ordination must be planned at this stage.

Ready instructional materials

Several sorts of materials are concerned here:

1. expendable raw materials such as art supplies, scenery materials, film stock and blank tapes;

2. media software for individual distribution such as instruction sheets, descriptive and instructional literature and the like;

3. media software for group use, such as demonstrations of techniques - models for students to emulate in their own performance, produced for training purposes such as this, on tape, film, slide set or other media.

If a large number of courses of the same type are planned, kits of instructional materials that can be used and returned to a national centre would be a practical thing and reduce the chore of collecting and returning all the necessary materials to a very simple process.

Administer pre-test

During the process of selecting the right students for the course, certain tests will already have been given. These could probably be considered to be pre-pretests is that their purpose was to determine if the course applicant had the necessary prerequisite knowledge or skills to benefit from the course.

The purpose of the pre-test, when one can be given, is to see how much of the course content the student already knows. The resulting information will be put to several uses: the director will add it to other knowledge he may have of each individual student, and plan to help some students more than others, perhaps to use some students to help in the teaching of certain areas. He will compare the pre-test with the post-test or final evaluation of the course, to determine how much learning took place. Then he will hope that the pre-test will serve to orient the student to what it is that he is about to learn, and help motivate him to his best efforts by making him dissatisfied with his present ability in that area. Some students, particularly if they have had some experience in the field, may enter such a course merely because they are assigned to it, feeling that they actually know everything already.

Where cognitive learning is concerned - the knowledge or theory part of nearly any learning, and the whole of some - pre-test and post-test can be nearly identical and comparison is easy. When psychomotor skills, or human interactive skills are concerned, the task of devising a pre-test is considerably more difficult. If the student is already on the job, an evaluation of his work can sometimes be made by an expert observer, probably the director of the course, or a professor. Notes taken during this observation may be consulted at the time of the final evaluation and can provide a general indication of the amount of increase in the student's skill.

Working conditions and procedures may be so difficult, however, that any meaningful evaluation of real level of ability is impossible. Under such conditions it may be necessary to set up a special test situation, with all unnecessary constraints removed, and assign a sample project or action. A procedure such as this will also be necessary if the students are not currently on the job.

Administer instruction

This action is self-explanatory. It is a highly complex function which is not detailed here. The analysis which has preceded this point has determined: (1) who is to be taught; (2) what is to be taught to whom; and (3) under what conditions the teaching will take place. In addition it is known to what level of knowledge or operational proficiency each individual is expected to learn each subject.

For the training director or administrator of the course it is then only necessary to devise a strategy which in his estimation will succeed in meeting the stated objectives, with the given student population, under a known set of conditions. In the past the course director had at best only a known set of physical conditions but only a sketchy idea of the individual backgrounds and capabilities of the students and no guidance at all concerning what was to be taught. Curriculum was left strictly up to him.

Apply post-test

The post-test, or final evaluation of the course when compared with the pre-test, and the stated objectives, will determine which persons did not succeed in achieving which objectives. On the basis of this knowledge the needs for review and/or remedial instruction can be listed, and the necessary additional instruction

planned. If proper care has been given to selection of trainees with the right prerequisite backgrounds and qualities, and the results of the pre-test have been properly interpreted, there should be little need for remedial instruction.

Did the instruction transfer to daily work?

After a certain time lapse, say one or two months at the least, the success of the course instruction should be assessed by observing the daily work of the students who took the course and comparing this with their work prior to the instruction. In the case of an organization that has not been in operation prior to the course, comparison with the pre-test and with the post-test will determine whether the instruction has carried over into daily work.

Again, in the case of the organization that was in prior operation, the problems which prompted the training in the first place, which may have been either (1) failure to realize the ITV organizations' instructional objectives, or (2) need for greater efficiency in so doing, should be reconsidered to see if they have been alleviated or not. If not, the flow chart directs to user, via letter C, back to the second page of the chart where the objectives of the ITV organization are again reconsidered to see if they are realistically achievable. If it is decided that they were unrealistic after all, the user is taken farther back, via letter B, to the first page of the chart where he is asked to redefine, revise, simplify, etc., these objectives. When this is done it may be found that the new objectives are being realized and no further training is required. If not, the analysis process should be begun anew in a further effort to solve the problems of the organization.

5. The Tiffin Matrix: Instructions for Use

Functions

Several people may do one function (camera operating) or one person may do several functions (advising on pedagogical matters and presenting).

The titles of people vary from station to station but all these functions are necessary to an ITV organisation which produces its own programmes with the full complement of resources normally available in a TV complex.

Most of the functions are readily recognised but columns 29-32 need elucidating.

Column 30. The people doing this function may be called monitors, orientadores de aprendizagem, teachers, etc. They are the people concerned with controlling a group audience, and creating a learning environment.

Column 29. Normally there are a large number of people involved in the work of column 30 i.e. as o.a.s. or monitors and there will need to be people to coordinate them and their relations with the station.

Column 31. In an ITV organization reception is a major but often neglected concern. There should be people concerned with the correct installation, distribution, and maintenance of receivers.

Column 32. ITV seldom functions without other media. Frequently this takes the form of supplementary materials which have to be prepared and distributed. The collection of completed work and the dissemination of printed information may also be involved.

Subject

Each function was analysed to see what elements of work were necessary to accomplish it. Each work element was then analysed to see what skills or knowledge were required to complete it. Often the same skills or knowledge were needed to perform other sorts of elements in other functions. It was possible, therefore, to draw up a list of 135 subjects which represent the total of skills, abilities and knowledge required to perform the 32 functions.

Each subject has been briefly defined and a competent ITV trainer should be able to recognise and cater for the teaching unit indicated.

The subjects are in a carefully selected hierarchy of what should be known before moving on to the next subject. This means that it is possible to construct a time-table direct from the matrix. It should be noted, that any subject taking more than 1 hour does not need to be completed before moving on to the next stage. For example, there are 10 hours of lectures on the "psychology of learning". This is introduced at an early stage because production personnel should, before proceeding to study production techniques, have a concept of the psychology of learning and its application to ITV. Further lectures on particular aspects of this subject, however, could be arranged (perhaps 1 or 2 a week) to relate with specific topics in production.

A certain duality of subjects will be noticed, e.g. "Educational Technology". "Educational Technology of this ITV organization". The reasons for this are:

1. Training might be for an embrionic organization which has not acquired

hardware. 2. For some functions it is sufficient only to know a subject as it relates directly to the function. For other functions it is important to know the subject in its wider aspects as there might be a need to introduce or innovate. For example, an orientador de aprendizagem needs only to know the educational technology which he/she is required to use in the course of his/her work but the person who is planning a new instructional series needs to know all the possible alternatives and possibilities of educational technology in making a selection of the role of ITV and, possibly, introducing new equipment.

Teaching methods

Column 1. Supervised Practicals. Whenever X is marked in the matrix the trainees concerned need practical work or exercises to the extent indicated. Where it is difficult to be exact about length of time that is needed a ✓ indicates that there should be practicals.
Column 2. The amount of time spent in a studio is critical in the preparation of an ITV Training Course. It is a major costing factor and may determine the length of the course and the numbers of the course. Studio demonstrations are therefore separated from the rest of the time needed for lectures and demonstrations. Lecture/Demonstration time is expressed in units of hours. Clearly it is not possible to be exact. Teachers and students vary. These quantities are, however, based on experience and for general quantifying purposes should be found to be correct.
Column 3. Shows what materials the student needs. In most cases he will need a text or notes expanding the subject or describing its salient elements. This is shown by T. F indicates where it would be good to use a film to which the students have frequent access. X indicates other aids (maps, cassettes, etc.) should be considered.
Column 4. This concerns evaluation, which is divided into written tests and practicals. Where possible the time is quantified. Frequently, however, in the practical tests it is difficult to estimate time or even method because of interrelationship with other subjects and ✓ indicates simply that there should be some test of evaluation.

Time in this column is in minutes. The tests do not need to be given separately (an end of week test could include 8, of the 15 minute units).

Tutorials proved too difficult to estimate and are not included, but should be allowed for.

Using the Matrix

Having selected the Functions for which training is needed, check which subjects must be known (X = know the subject to be able to practically apply it

/ = have a theoretical knowledge of the subject)

Next eliminate those subjects in which the trainees can be expected to be proficient.

What is left is what has to be taught and the hierarchy of the numbers of each subject indicates the sequence of the syllabus.

The Teaching Methods Column now gives the number of teaching hours involved. Remember the teaching hours in the studio are critical. They are expensive and they interfere with ongoing production.

The amount of time needed for evaluation and practicals can also be calculated. Again studio practicals are critical. In a course for direction the 10 hrs. needed for practicals in the studio must be multiplied by the number of people to be trained as directors.

Length of course = total teaching time
+ total time for evaluation
+ time needed for practicals (check to what extent different practicals can be conducted at the same time)
+ time for tutorials (this can be regarded as a variable)

_____

_____

+ 10% of this time to allow for re-teaching, Equipment breakdowns or other contingencies

_____

Length of training

_____

Besides being able to quantify the length of the course, it is also possible to note in what subjects trainers are needed, how many and for how long.

It is also possible to determine what teaching materials are needed.

Knowing the number of trainers, the number of students, the length of the course, the number of studio hours and the facilities needed it is possible to estimate the basic cost of the course.

SELECTION OF TRAINEES - CRITICAL PREREQUISITE

	Chief of production	Producer	Director	P.A.	Floor manager	Vision mixer	Camera man	Vision-control	Sound control	Mike operator	Sound recorder	VT operator	TC operator	Lighting man	Director of graphics	Graphics artist	Set designer	Photographer	Cinematographer	Props man	Presenter	Pedagogic adviser	Researcher	Evaluator	Reception supervisor	Monitor	Reception co-ordinator	Librarian	Suuport-serv. coordinator	Traffic
Health record	+	+	+		+																					+				
Eyesight	+	+	+	+	+		+	+	+	+	+	+	+	+					+		+			+	+	+	+			
Hearing	+	+	+	+	+		+	+	+	+	+	+	+						+		+			+	+	+	+			
Psychomotor					+	+	+	+	+	+	+	+	+	+	+		+		+		+									
Psychosensory			+	+	+	+	+	+	+	+	+	+		+	+		+		+				+	+	+		+		+	
I.Q.	+	+	+	+	+			+	+	+	+			+			+		+		+	+	+	+	+	+	+	+	+	+
Educational level	gr.	gr.	gr.	st.	H.S.	H.S.	H.S.	H.S.													tea.									
Type of education						tech.	tech.	tech.				tech.		tech.	AV art	art	art				ch. ed.	gr.	gr. res.	gr. stats	H.S.	H.S.	H.S.	H.S.	gr. ed.	H.S.
Functional literacy	+	+	+	+	+	+	+	+	+	+	+	+	+						+	+	+					+				
Experience	+	+	+				+	+	+	+	+	+	+	+	+	+	+		+				+	+	+	+	+	+	+	+
Creativity	+	+	+											+	+	+	+	+	+							+				
Orientation	+	+	+	+	+	+								+					+		+		+			+			+	
Responsibility	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Team-work	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+		+	+	+	+	+			+
Work under pressure	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+		+		+		+	+	+			+
Improvisation	+	+	+		+			+	+	+	+			+	+	+	+	+	+	+	+		+	+	+	+	+		+	+
Objectivity	+	+	+								+			+	+	+	+	+	+		+	+	+	+	+	+			+	
Aspiration	+	+	+	+											+						+		+		+	+			+	
Self-assurance			+		+		+	+	+					+	+				+		+			+	+	+			+	+
Leadership	+	+	+		+										+										+	+			+	
Reward-incentive (1 highest/5 lowest)	1	1	1	2/3	3	4	2	3/4	3	4	3	3	4	3	2	3/4	1/2	2/3	2/3	4	2	1/2	2/3	2	2/3	3/4	3/4	3/4	2	2/3

Explanation of abbreviations: gr. = graduate; H.S. = high school; tech. = technical; AV = audio-visual; art = artistic; tea. = teachers-school; ed. = school of education; gr. stats = statistics graduate; st. = student; gr. res. = research graduate; gr. ed. = education graduate

6. Aptitude Tests

Our previous experience, in addition to our observation of the Brazilian Reality, has brought us to emphasize the process of selection of personnel to be trained, as a critical phase not only in training but in the operation of ITV as a system.

We began by analysing the prerequisites required for the performance of each function in an ITV system, using as a criterion whether the presence of a given prerequiste is critical to the performance of the function. This distribution of prerequisites according to function appears in the table following this section.

The prerequisites are divided into groups, as follows:

1. Physical, - General Health Record, Eyesight, Hearing
2. Cultural-Educational, - Educational Level, Type of Education, Experience in same or related field, Functional Literacy
3. Psychological-Personality, I.Q. Psychomotor Level, Creativity, Orientation/Motivation, Responsibility, Ability for Team Work, Capacity to improvise, Objectivity and capacity to criticize self and others, Level of Aspiration, Self Assurance, Leadership, Reward-Incentive

The table presents a general desciption of prerequisites considered by us to be critical to the performance of each function. Thus, one would expect a prospective trainee in vision-mixing, for example, to present good psychomotor and psychosensory abilities, to have a technical high school education, to be functionally literate, to be oriented towards the goals of ITV, to be responsible and able to do team work, sometimes under pressure. The reward-incentive would be 4 (in a scale where 1 is the highest and 5 the lowest).

Our table, like most models, tends to show an ideal situation, in which one is able to select the best candidates out of a large "supply". Unfortunately, this does not seem to fit the Brazilian Reality, where one would have to reach a compromise in regard to the existence and the level of some prerequisites. Therefore, the general structure we were able to elaborate during the short time of our mission would have to be developed further, in order to be applicable. In so far as this last point is concerned, further elaboration would include at least an analysis of: (a) the order of importance of the prerequisites required for each function (for some functions responsibility would be more important than educational level, other functions would emphasize the latter, and so on.) (b) the quantification of prerequisites required for a given function ("how much" aspiration, responsibility, etc.). This would enable the person or persons in charge of selection to decide who are the best candidates in a real situation.

The most important operational phase is, of course, the application of objective tests which would determine if and to what measure a candidate has the prerequisites necessary to enable him to operate in the function for which he wants training.

In so far as the Physical and the Cultural-Educational prerequisites are concerned, information could be gathered quite easily, from official sources, with the exception of functional literacy, for which a test should be applied. As well, tests should be applied regarding all Psychological-Personality prerequisites.

In this connexion, we interviewed experts from AIR in Rio de Janeiro, and visited the Fundação Carlos Chagas in São Paulo. This is described in the section about our observation of the Brazilian Reality. We were informed by our hosts in the Fundação that at the present the only test which could be adapted rather soon, would be a functional literary test.

Psychological Tests would have to be developed and/or adapted from other countries (especially the U.S.A.) and would be pre-tested before being administered. The few tests available in the Brazilian market, according to the information supplied, are foreign tests translated to the Portuguese, but not adapted to Brazilian society and culture. A project of great importance to the future of ITV training in Brazil would be the adaptation to Brazilian culture of some of the texts that have been merely translated, and the translation and adaptation of others that are not now available in this country. We were informed that the Fundação would be able and willing to undertake a project of this type, in co-operation with PRONTEL. International assistance would help to perform this task in short time.

IV CONCLUSION

The main recommendations of the mission are already included in the previous chapter which describes in detail the proposed model for the Brazilian ITV training needs. As explained before, the attempt was to define the model not from a theoretical point of view but in close relation with the Brazilian reality.

Nevertheless, and despite continuous attention given to this principle, the model is still a model, of necessity theoretical in some of its aspects.

Therefore the main conclusion of this report is the necessity to test the model by applying it to Brazilian reality.

To this end, it is recommended that careful attention be given to the problem of the human resources needed for its implementation. Therefore, the first operational step should be the creation of a Brazilian ITV training team, who would have to conduct the following step of setting up of the national and regional training centres.

1. A Brazilian ITV Training Team

It is suggested that a team of analysts, to be known as the Brazilian ITV Training Team (BITTT), be assembled gradually during the next year. The full team should consist of six experts: (1) an expert in ITV administration and organization, who should also be the leader of the team; (2) an expert in engineering and technical matters concerning equipment; (3) an expert in classroom utilization, teaching methods, pedagogics and the like; (4) an expert in ITV programme production and direction; (5) an expert in evaluation, and (6) a training director.

The objectives of the team would be to apply the model that is described in this report to the analysis of the existing ITV organizations that seem to require training, and to those organizations not now operating as they approach the date at which they are scheduled to begin. The team would also be responsible for administering the courses which previous application of the model has helped design.

Three phases are proposed.

During phase I, the team would be composed only of the training director and an engineer. But as far as possible the permanent chief of the team should take over. During this first phase the individuals who will comprise the full team would be located, arranged for, and brought into the operation as counterparts of foreign experts where appropriate. The work during this period will consist largely of an extensive course at FCBTVE to prepare new staff and retrain existing staff for the production of programmes.

With the start of phase II the first testing of the training model and its use in analysing an operating ITV organization should begin. The team would then consist of four persons: the leader and ITV administration expert, an engineer, the production/direction expert and the training director.

During phase II three analyses are scheduled and three training courses. One of these is shown as a partially intermittent course, in order to show an example of this type of course on the figure. Type of course and course content would of course depend on the results of analysis. The choice of locale for each scheduled analysis and training is also arbitrary at this time and might follow a different order depending on conditions and the judgement of the team.

With the start of phase III two additional specialists should join the team, a utilization/pedagogical expert and an evaluation expert. The team would then consist of six individuals. During phase III five analyses and five training courses should be scheduled.

The person who is appointed as the head of BITTT should be a man of senior status, accepted leadership abilities and should have specialist knowledge of ITV administration systems. Therefore it is recommended to make a careful selection before appointing him.

2. A national training centre

There should be a national training centre which would be a base for BITTT. It has been suggested that certain types of courses, general courses that are very general, and specific courses that are very specific, can be administered well in a national training centre. (Most general courses should be given in the specific environment of the organization for which they are designed. Those that are given nationally will probably require follow-up training with the specific studio equipment or school facilities of each locality where the students are to start working.) Specialized courses could be offered in national centres in such subjects as studio production techniques (simple scene construction, studio use of graphics, staging etc.), educational planning (curriculum development, classroom utilization etc.), technical training (general electronics, TV equipment maintenance, VTR operation and the like), and evaluation and research.

There is another function that a national centre for instructional television training should perform, and that is to serve as a library and distribution point for training materials to use in ITV training. This could include films from abroad, textbooks and the like, but the centre should also be responsible for the planning and production of its own materials. In nearly every course there are areas of theory and knowledge, even the demonstration of techniques to be learned, which can be presented as well or better by a communication medium such as TV, film or the printed page, than they can be presented by the trainer himself in the conventional lecture situation. The presence of such materials would greatly simplify the task of course preparation and administration, as well as enrich the course.

Hardly any of the media software (including textbooks) that is available for ITV training abroad has been translated into Portuguese. Not only should texts and other such materials be translated, but translations should be prepared of the narration accompanying foreign language training films, so that a trainer could use a film by the expedient of turning down the sound and reading the narration himself from a Portuguese script. The identification of useful materials, their acquisition and translation is a project which could begin as soon as BITTT has a secretarial staff.

The national centre should take the initiative to keep abreast of developments and innovations abroad, and when equipment or techniques appear that have promise in Brazilian use, the centre should establish test projects and demonstration programmes if feasibility is established.

One of the first assignments of the BITTT secretary will be to locate and acquire materials for training purposes, identify the needs for translation and oversee the translation process. When sufficient materials have been accumulated and training courses are under way, it will be time to engage an ITV training librarian, who will take over the administrative duties previously performed by the secretary

3. Regional training centres

PRONTEL should consider the establishment of regional training centres in relation to plans for expansion of ITV. Regional centres should be located at well established and operating ITV centres, providing that the space and additional facilities required are available. In addition to offering concentrated and continuous courses of both a general and specific nature, the regional centre could eventually be the centre for the administration of the intermittent or on-the-job training that we have previously described. We envisage such a service as being based on the "travelling agents", a training expert permanently or temporarily based at the regional centre, whose responsibility would be to make periodic visits to operating centres in his region, bringing new training materials, such as films on special effects or lighting techniques, or methods of classroom utilization. He would analyse the work of people he is training and make constructive suggestions for improvement in line with the stated objectives of the instruction.

In addition to providing a base for the travelling agent, and a centre for the administration of courses, the regional centre might have several other functions. It could provide certain production services for the smaller centres in its region, such as film editing and sound re-recording facilities of the sophisticated type that would not be practical for them to acquire. It could be a base for regional exchange of programming on videotape, and co-ordinate the purchase of equipment at the various centres so that such interchange is possible. It could maintain library files of instructional materials such as films, audiotapes, records, graphic materials and the like, which could be far more extensive than any single centre could afford, and in effect provide a means of sharing the resources of the entire region. A region that is ready for such a co-ordinating centre is the north and northeast where a centre at São Luis, for example, could serve Recife, Manaus, and possibly other ITV

centres that might appear in such cities as Forteleza, Maceió Terezina etc Clearly however, the concept of the regional training centres depends upon Brazilian plans for expansion in ITV.

We have noted that the real training problem is related to the creation of the large infrastructure of reception Brazil needs if it is to use the mass media to overcome its mass education problems. São Luis is a centre of expertise in the area of utilization, reception and evaluation, thus it is of particular interest as a regional centre which could provide this specialized training

4. Training and the personnel problems of the small station

It has been noted, particularly in the discussion of the problems of the ETV station in Manaus, that the problem that the small station faces in obtaining and retaining adequate personnel of many types is very serious. As more of the states with limited resources try to begin local production, this situation will become more widely extended. The following suggestion is offered as a possible means of obtaining a supply of adequate personnel in various areas

If aspiring directors, producers, engineers and the like receive their basic training, and perhaps also the specialized courses they need, at national or regional training centres, they might then be required to start their professional work, as doctors do, with a year of practical experience (internship) under working conditions. During this period an intermittant or on-the-job training course could be administered by a travelling expert who would visit and criticize the work of the internee at intervals. The internees would be assigned to small stations and production centres where adequate personnel is lacking. During the internship year the new professional in ITV would have the opportunity to prove what he can do. Prospective employers could observe his work, or his videotapes, and the quality of his work during this training period would determine the kind of employment opportunities he would have at the end of his internship year.